

1 IN THE UNITED STATES DISTRICT COURT  
2 FOR THE NORTHERN DISTRICT OF GEORGIA  
3 ATLANTA DIVISION

4 DONNA CURLING, ET AL., :  
5 :  
6 PLAINTIFFS, :  
7 vs. : DOCKET NUMBER  
8 : 1:17-CV-2989-AT  
9 BRAD RAFFENSPERGER, ET AL., :  
10 :  
11 DEFENDANTS. :

12 **TRANSCRIPT OF HEARING ON PRELIMINARY INJUNCTION PROCEEDINGS**  
13 **BEFORE THE HONORABLE AMY TOTENBERG**  
14 **UNITED STATES DISTRICT JUDGE**

15 **JULY 25, 2019**

16 **10:10 A.M.**

17 **VOLUME 1 OF 2**

18 ***MECHANICAL STENOGRAPHY OF PROCEEDINGS AND COMPUTER-AIDED***

19 ***TRANSCRIPT PRODUCED BY:***

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

**(Atlanta, Fulton County, Georgia; July 25, 2019.)**

THE COURT: Good morning. Please have a seat.

Counsel and ladies and gentlemen, we're here in the matter of Donna Curling, et al., vs. Brad Kemp, Civil Action Number 1:17-CV-2989.

I know that this hearing is one of public interest. I would ask the audience though to try to limit your sounds or reactions. It is not -- it doesn't help us, and we're not in a political event.

And on that note, I wanted to say that I understood that one or more individuals were distributing a leaflet about election systems. And that is absolutely, you know, permissible, totally authorized outside the court. And I understand it is a traditional forum for distributing literature and rallying on the courthouse steps.

But please don't do this -- use the courtroom or the halls for that purpose. We have a different function. And I appreciate that.

We have a lot of counsel here. And I understand that because of the volume of counsel that Fulton County counsel is sitting in the front row back there. Hello. And if there is some discomfort at some point, we'll try to figure out maybe a better adjustment. But I'm not sure we're going to have one. But I appreciate your flexibility in sitting there. And I'm

1 sure your other defense counsel will assist if you need to get  
2 up to access a computer.

3 I have a listing here of everyone who is present.  
4 And so for purposes of just proceeding, I want to just make  
5 sure that the court reporter has everyone's names.

6 COURT REPORTER: Yes, ma'am.

7 THE COURT: It would be helpful for me to know though  
8 who though -- I understand that there will be a variety of  
9 counsel asking questions over time. Tell me who is going to be  
10 the lead counsel for the Curling plaintiffs.

11 MR. CROSS: I will, Your Honor. David Cross of  
12 Morrison & Foerster.

13 THE COURT: Who is going to be lead counsel in  
14 speaking for the Coalition plaintiffs?

15 MR. BROWN: I will, Your Honor. Bruce Brown.

16 THE COURT: And for the state defendants, who is  
17 going to be the lead counsel?

18 MR. RUSSO: Your Honor, Vincent Russo. And I will be  
19 the lead counsel today.

20 THE COURT: And for Fulton County?

21 MS. BURWELL: Kaye Burwell, Your Honor.

22 THE COURT: Okay. So everyone on the left side of  
23 the room at the tables are representing the state; is that  
24 right?

25 MR. RUSSO: Yes, Your Honor.



1 THE COURT: We're just propagating. All right. Very  
2 good.

3 Counsel have proposed a framework here that there  
4 would be a defined period of time for each witness and if there  
5 is extra time it can be moved into another witness, as I  
6 understand the system that you have all negotiated.

7 Is it something like that or at the end?

8 MR. CROSS: Yes, Your Honor. Essentially what we  
9 agreed to was that we would try to split the overall time 50/50  
10 by side. And then each side can use their time however they  
11 want in terms of opening, closing, direct, and cross. But that  
12 way it is equitable in trying to move efficiently.

13 THE COURT: All right. And I know the plaintiffs put  
14 forth a number of -- for example, 60 minutes for Dr. Halderman,  
15 and you anticipated then that you would also allocate 60  
16 minutes for the defendant. Or is that 30 and 30? I wanted to  
17 just make sure.

18 MR. CROSS: Right. So what we did, Your Honor, was  
19 to put only our own examination times because we figured they  
20 would figure those out. I can tell you Dr. Halderman is more  
21 like half an hour. So these things have gotten cut back a bit.  
22 But it is only what we expect for our --

23 THE COURT: So you are basically saying if you spend  
24 20 minutes they could spend 20 minutes?

25 MR. CROSS: What I'm saying is: We spend 20 minutes,

1 they could spend 2 hours if they want, but that comes out of  
2 their entire aggregate time. Once you are out of time, you are  
3 out of time.

4 For like Barron, for example, we're only going to  
5 cross-examine Mr. Barron. So whatever time we use for that  
6 comes out of our total time.

7 Does that make sense?

8 THE COURT: So you are going to cross-examine him  
9 after he is called as a witness?

10 MR. CROSS: That's right. I confirmed with Ms.  
11 Burwell that they are definitely calling him. So we'll just  
12 wait and cross-examine him.

13 THE COURT: And there were a number of other people  
14 like that that you had listed. Mr. Barnes, for instance. Are  
15 you going to call him, or are you going to just cross-examine  
16 him?

17 MR. CROSS: Mr. Beaver and Mr. Barnes we will call in  
18 our own case.

19 THE COURT: And so what will happen when they call --  
20 will you still -- you are still retaining the right to  
21 cross-examine them?

22 MR. CROSS: If we do that. What we did last time was  
23 both sides just did all their examination at once. I don't  
24 have a problem with that. I'm not going to argue that their  
25 examination of Mr. Beaver is limited to my examination. It

1 would seem more efficient to just get witnesses on and off.

2 So --

3 THE COURT: All right. Well, I guess you can  
4 determine based on the questions whether you want to do that or  
5 not.

6 MR. RUSSO: That is fine, Your Honor. That seems  
7 like a reasonable approach.

8 THE COURT: All right. I'm just a little bit -- did  
9 you have a total number of hours or am I just supposed to add  
10 all this together that you are anticipating?

11 MR. CROSS: Right. So the math that I had in mind  
12 when Mr. Russo and I talked about this was -- I think we  
13 figured somewhere between five hours of standup time in the  
14 court given the hours you have set aside.

15 THE COURT: Today?

16 MR. CROSS: Each day.

17 THE COURT: Each day.

18 MR. CROSS: If we do two full days. So roughly five  
19 hours per side was the idea. We have folks on our side that  
20 will help -- that will track time so Your Honor doesn't have to  
21 do that.

22 THE COURT: All right. So I guess we'll still try  
23 to. And I won't take the time I'm consuming right now against  
24 anyone.

25 We have some issues about the sufficiency of the

1 number of seats here. And I just want to say that if you do  
2 plan to -- if there is anyone who happens to be of a group you  
3 might want to be able to circulate people at some point and  
4 allow different people to sit. I don't mean to be saying that  
5 every 15 minutes or anything else like that as in the Supreme  
6 Court. That would be highly distracting. But the extra  
7 overflow room as before will have audio though. It does not  
8 have visual. And one day we will have -- be able to have  
9 proceedings in there if we are graced by technology.

10 All right. I think I understand this now. Who will  
11 be timekeeping for you-all just simply in case we fall back on  
12 our --

13 MR. CROSS: We have two individuals, Ms. Conaway, a  
14 paralegal, and Reema, one of my colleagues, one of my  
15 associates.

16 THE COURT: Are you going to be doing it also  
17 relative to the defendants' time?

18 MR. CROSS: Yes, Your Honor. They'll calculate for  
19 each of the four groups.

20 THE COURT: Is anyone doing it for your time, or do  
21 you want to just rely on what they are doing?

22 MR. RUSSO: I'm fine. I'll rely on their person.

23 THE COURT: All right.

24 MR. CROSS: Your Honor, I have been informed that the  
25 defense is totally out of time.

1           THE COURT: Very good. I'm sure that he will stand  
2 up later on and say that too. And maybe I will too to  
3 everybody.

4           Okay. A few other housekeeping matters. There's  
5 some issues about confidentiality of documents. And it is hard  
6 for me to completely understand how that is going to bleed  
7 over, especially in the testimony of Dr. Halderman or Bernhard  
8 or any of the other experts.

9           And even if I -- even if I am to agree with the state  
10 that the documents at issue are confidential, I think it would  
11 be -- we would be hard-pressed to be able to reasonably have a  
12 public hearing and not have matters of great public import and  
13 interest and not at least allow the expert to discuss these  
14 issues.

15           Now, if there is something that is particularly  
16 structural that you think that Dr. Halderman is getting into,  
17 you can flag that and explain that and come to the bench. But  
18 it is -- I think it would be highly disruptive of the testimony  
19 if we are jumping up and down on this. So unless there is  
20 something that is absolutely like a heartthrob to you of the  
21 greatest variety, i.e., heart attack level, I would say don't  
22 do that.

23           I don't think -- I can't imagine we're going to get  
24 to the level of structure that would be such that it would  
25 expose something to the state -- of the state's that would make

1 the state vulnerable. On the other hand, to discuss  
2 vulnerabilities as a whole, that is what we have been doing.  
3 And he can fully testify about that. If we have to get into  
4 something that you can persuade me that is really so technical  
5 and structural that somebody picking up the transcript would  
6 make a remark about and be able to exploit it, then we'll have  
7 to just basically put a tag on that potentially and -- and deal  
8 with it later in the day.

9 MR. CROSS: Your Honor, one flag on that. The first  
10 witness we plan to call is Merritt Beaver. He will implicate  
11 some of this, both of the issues that have been briefed before  
12 Your Honor. I'm happy to just walk through the cross. And if  
13 they want to object as you suggested -- but I wanted to raise  
14 that in case there is something that should be dealt with  
15 beforehand.

16 THE COURT: All right. Are there any other  
17 preliminary matters that we have to deal with?

18 MR. CROSS: I think two, Your Honor. One, we have  
19 invoked Rule 615 -- Mr. Russo and I spoke to that -- as to fact  
20 witnesses. So experts will remain. I think they have a  
21 single -- actually who is your client rep?

22 MR. RUSSO: Our client is going to be Mr. Barnes.

23 MR. CROSS: So they have one client rep. So I wanted  
24 to alert the Court to that.

25 The other was: Did Your Honor reach a decision on

1 Dr. Shamos, or is that still being considered?

2 THE COURT: My view about Dr. Shamos is this -- is  
3 that I haven't seen the many hour deposition. I don't know all  
4 that was discussed there. I have read his quite detailed  
5 affidavit. And he addresses line-by-line, it feels like, at  
6 points the work and affidavits of the plaintiffs' experts. To  
7 me, his affidavit fully addresses that.

8 Now, if there is something in particular in the  
9 testimony that is new that arises today that he wasn't given an  
10 opportunity to address, then I would consider allowing him to  
11 testify as a rebuttal matter on that. But if it is not new, if  
12 it is encompassed within essentially the affidavit he gave and  
13 the testimony he gave in response to the issues as he has been  
14 presented to it, then I think that that would be redundant and  
15 not necessary.

16 MR. CROSS: Thank you, Your Honor.

17 MR. RUSSO: Your Honor, we just want to point out  
18 that Dr. Shamos' declaration was addressed in the reply briefs  
19 that plaintiffs filed. He never had a chance to rebut those  
20 declarations that were in the reply brief. It may not be  
21 necessary, of course, to call him based on what you are saying.  
22 But we did want to point that out.

23 MR. CROSS: Your Honor, only briefly. The reply  
24 brief was filed, I think, on the 18th. We deposed him on the  
25 19th. He was deposed after the reply briefing was done. So

1 Your Honor's ruling is fine. I just didn't want to allow that  
2 to stand on the record --

3 THE COURT: I understood that the reply brief was  
4 filed the day beforehand.

5 MR. RUSSO: We filed our response, of course, on the  
6 10th.

7 THE COURT: Right. But you didn't basically file  
8 anything to say we need to be able to file something in  
9 response to that from him and I do know -- or seek the  
10 permission to do that either. So that is -- that is the way I  
11 view it at this juncture. And, you know, you can track  
12 whatever the issues are you think that might arise and  
13 specifically tell me about them at the end.

14 But I can't -- further than that, I would need to  
15 know specifically what he was going to address that was -- that  
16 came as a totally new matter.

17 All right. So we're not going to have any opening  
18 argument. And you briefed this a great deal. If there is  
19 something that I need to hear on closing argument, we'll deal  
20 with that tomorrow.

21 Anything else? Just for our own purposes, even  
22 though I know -- yes. I'm sorry.

23 MR. RUSSO: I was waiting to see if they were going  
24 to go first. Your Honor, we just wanted to make a note that we  
25 do have an objection to the use of Joseph Kirk's deposition



1 transcript -- the filing of it that plaintiffs made. Mr. Kirk  
2 is the Barrow County -- excuse me -- Bartow County election  
3 superintendent. They took his deposition. It ended without  
4 any rebuttal -- without any cross-examination to be possible.  
5 We would be happy to point out areas of the transcript for you  
6 to consider. But we do object to them filing it without the  
7 conclusion of that deposition.

8 THE COURT: Without -- I'm sorry?

9 MR. RUSSO: That deposition concluding without the  
10 defendants being able to cross-examine Mr. Kirk.

11 THE COURT: Was a representative of the state  
12 present?

13 MR. RUSSO: We were present, yes, Your Honor. The  
14 deposition took seven hours on the plaintiffs' side. And the  
15 county attorney concluded it without any cross.

16 THE COURT: Okay. And you didn't seek permission to  
17 be able to continue?

18 MR. RUSSO: I'll defer to my colleague here who was  
19 at the deposition.

20 MR. MILLER: Your Honor, Carey Miller for the state  
21 defendants. The situation surrounding this is that plaintiffs  
22 noticed the deposition at the Bartow County Courthouse, which,  
23 of course, was scheduled to close at 5:00. At the point in  
24 time we were at about five and a half hours on the record,  
25 probably about seven to eight in total time, both the state

1 defendants and Fulton defendants objected to the deposition  
2 itself for the reason that we were not able to cross-examine.  
3 At that time, the Coalition plaintiffs' attorney who was  
4 conducting the deposition indicated that he intended to  
5 continue the deposition. And, of course, counsel for the  
6 election supervisor also indicated that he was going to object  
7 to continuing the deposition to the extent that it violates the  
8 Federal Rules of Civil Procedure being a deposition that lasts  
9 for more than a day.

10 Frankly, we were in a situation where this was after  
11 our brief was filed. The deposition had obviously not  
12 concluded. We anticipated it would be continued at some point  
13 and then only to see a few days later that deposition being  
14 relied upon in the reply brief.

15 What we would suggest to the Court is that if we  
16 could perhaps read in a few lines of the deposition. Of  
17 course, these would all be questions that were posed by  
18 plaintiffs' counsel, given that we did not have that  
19 opportunity to pose questions. And, again, we did object on  
20 the record as to this matter.

21 THE COURT: All right. So what you want to do is now  
22 read in some of the matters that they didn't include? Is  
23 that --

24 MR. MILLER: No, Your Honor. It would be reading in  
25 questions that, frankly, were questions from plaintiffs'

1 counsel and reading in Mr. Kirk's answers to those. But the  
2 fact is that we had no opportunity to use any portion of the  
3 deposition nor to cross-examine him at all.

4 THE COURT: All right. But are you asking now -- I  
5 mean, if you just want to provide other portions of the  
6 deposition, of course, you are welcome to do that and to just  
7 submit them rather than use these hours to do that.

8 I understand your point. I still -- given the  
9 frequency with which everyone was contacting me, frankly, in  
10 the last two weeks, it is hard to know if it was that  
11 significant why somebody didn't from the state say, and we have  
12 this problem, because I was hearing about every other problem  
13 in the book.

14 MR. MILLER: Your Honor, to be clear, we raised the  
15 issue with counsel. We wanted to confer about it. But,  
16 frankly, we had so many other things going on.

17 THE COURT: All right. And I understand. But you  
18 are welcome anyway -- if there are additional pages of the  
19 deposition you want to submit, you are welcome to do so.

20 If Mr. -- if the witness is coming -- but I didn't  
21 hear he was coming -- then you're welcome to cross-examine him  
22 then. All right.

23 All right. I still think just for my own purposes so  
24 I understand, Mr. Martin, how we're proceeding, would you still  
25 use our stop clock as well so we can just simply get -- I can

1 have a sense of how long things are. And we'll just -- I mean,  
2 it is not digital. So it is a little harder to track than a  
3 digital clock. But basically when Mr. Martin starts it, you'll  
4 start seeing it move.

5 And which one is the second hand? I can't remember.

6 COURTROOM DEPUTY CLERK: The red one is the second  
7 hand.

8 THE COURT: The red one is the second hand, and then  
9 he will stop it when -- and start it again when the  
10 cross-examination begins. But you're welcome to continue  
11 using -- it is great to have another timekeeper as well.

12 All right. Then I gather we're ready to begin; is  
13 that right?

14 MR. CROSS: Yes, Your Honor.

15 THE COURT: All right.

16 MR. BROWN: Yes, Your Honor.

17 THE COURT: Call your -- plaintiffs, call your first  
18 witness.

19 MR. CROSS: We were going to do brief opening  
20 statements if that is okay with the Court.

21 THE COURT: What is brief?

22 MR. CROSS: For us, it is ten minutes or less.

23 THE COURT: Why do I need opening -- I don't want to  
24 spend more time discussing it than it is worth. But why do I  
25 need it? I have now read thousands of pages.

1 MR. CROSS: We could move right to witnesses if that  
2 is what --

3 THE COURT: What? Let's just start with the  
4 witnesses.

5 MR. CROSS: Thank you, Your Honor. All right. We --  
6 the plaintiffs will -- the plaintiffs will call our first  
7 witness, Merritt Beaver.

8 THE COURT: I will just be clear that only when you  
9 ask your first question am I going to start running time so  
10 that we can have the same notion of how we're proceeding here.

11 MR. CROSS: Thank you, Your Honor.

12 COURTROOM DEPUTY CLERK: Please raise your right  
13 hand.

14 **(Witness sworn)**

15 COURTROOM DEPUTY CLERK: Please have a seat. Loudly  
16 and clearly state your full name, and please spell your last  
17 name for the record.

18 THE WITNESS: My name is Sanford Merritt Beaver,  
19 B-E-A-V-E-R.

20 Whereupon,

21 SANFORD MERRITT BEAVER,

22 after having been first duly sworn, testified as follows:

23 CROSS-EXAMINATION

24 BY MR. CROSS:

25 Q. Good morning, Mr. Beaver.

1 **A.** Good morning.

2 **Q.** You are the chief information officer or the CIO for the  
3 Secretary of State for Georgia; is that right?

4 **A.** That is correct.

5 **Q.** One of the things under your purview is what is called the  
6 GEMS database, which is used for elections in the State of  
7 Georgia; right?

8 **A.** That is one of many systems I have.

9 **Q.** And you consider data in the GEMS database to be valuable?

10 **A.** It is more -- it is confidential. The federal government  
11 has defined it as critical infrastructure.

12 **Q.** The data itself?

13 **A.** The whole system.

14 **Q.** So your view is the data and --

15 **A.** Everything.

16 **Q.** In fact, as you just said, you have represented to -- even  
17 before today, you have represented to this Court that the  
18 Georgia GEMS database is unique and confidential; right?

19 **A.** It is unique and confidential. It has Georgia data in it.

20 **Q.** Well, let's be precise. What you have represented to the  
21 Court before is not that the data itself is simply confidential  
22 but that the structure of the database is confidential; right?

23 **A.** I have. But that was before a long-term conversation back  
24 and forth. That one statement is misleading.

25 **Q.** The statement to the Court that the GEMS -- the structure

1 of the GEMS database is confidential, that was a misleading  
2 statement?

3 **A.** No.

4 **Q.** Okay. Well, let's break it down. You represented to the  
5 Court -- let's take a step back. You are aware that there is a  
6 version that is publicly available from 2002 of a Cobb County  
7 GEMS database? We directed you to that; right? You are aware  
8 of that?

9 **A.** I am aware that you said there was a database that was  
10 claiming to be Cobb County out on the internet -- a stolen copy  
11 by an activist according to the plaintiffs.

12 **Q.** You are saying we said that it was stolen?

13 **A.** Yes, you did.

14 **Q.** We said it was stolen?

15 **A.** Yes, you did, on a call with our counsel.

16 **Q.** All right. Mr. Beaver, this is going to be a whole lot  
17 easier if you just listen and answer my questions.

18 **A.** Okay.

19 **Q.** Okay. Thank you.

20 Now, you represented to the Court on a call on July 11 of  
21 2019 that the public database that we had identified from  
22 2012 -- you said it was never an actual database that was used  
23 in Georgia? Do you recall saying that to the Court?

24 **A.** No, I don't recall saying that it was never used. I said  
25 I don't know anything about that one.

1 Q. You don't recall testifying -- let's take a look. From  
2 July 11, 2019, of this year, you had this to say -- and this is  
3 at Page 11 of the transcript of that call -- but from what I  
4 can tell, whatever they have from 2002 was never an actual GEMS  
5 database that was used in Georgia.

6 You don't recall saying that to the Court?

7 A. I believe I did say that based on the information that the  
8 plaintiffs had given us.

9 Q. Which included the publicly available database that you  
10 had access to on the internet just as we did; correct, sir?

11 A. I did not look at the 2002 databases that you had.

12 Q. In fact, we had a subsequent call where we -- you were on  
13 that call with me and others. And we asked you directly, did  
14 you look at that database -- that publicly available database  
15 before you represented to the Court that from what you could  
16 tell it was never an actual GEMS database that was used in  
17 Georgia? And you refused to answer that question on the call;  
18 right?

19 MR. RUSSO: Objection, Your Honor. That  
20 mischaracterizes his statements.

21 MR. CROSS: Mr. Russo is not testifying. Mr. Beaver  
22 can handle that.

23 THE COURT: All right. Overruled.

24 Q. **(BY MR. CROSS)** Right? You refused to answer that  
25 question on the call? We did not get an answer; right?



1   **A.**   I did not answer that.

2   **Q.**   But we are clear today -- you have anticipated where I was  
3 going. It is true that before you represented to this Court on  
4 behalf of the state that the database that we're talking  
5 about -- you said from what I can tell was never an actual GEMS  
6 database. You had not actually looked at that database before  
7 you made that representation; right, sir?

8   **A.**   When the plaintiffs --

9   **Q.**   Yes or no?

10   **A.**   It is not a yes or no question.

11   **Q.**   You can't answer yes or no whether you looked at that  
12 database --

13   **A.**   No, I can't, because you didn't give the full background.

14           THE COURT: Well, sir, you can answer the question  
15 yes or no, and then you can explain. Did you look at it, or  
16 did you not look at that --

17           THE WITNESS: So --

18           THE COURT: -- before?

19           THE WITNESS: I did say that.

20   **Q.**   **(BY MR. CROSS)** And it was not --

21   **A.**   It was based on a request from our side for a copy of the  
22 database headers, table names so that we could verify what you,  
23 the plaintiff, was saying the table structure looked like.

24           We did get a copy of the table structure. It was called  
25 Exhibit B. That was the list of table headers that the

1 plaintiff said was on the database that they had that was  
2 called Cobb County. I looked at Exhibit B. There were 51 line  
3 items on it. Only 9 matched the database.

4 **Q.** You still maintain today that out of the fields on Exhibit  
5 B that was filed with this Court that only nine of the tables  
6 match?

7 **A.** Correct.

8 **Q.** Okay.

9 **A.** Nine match the table header spelling, structure. That is  
10 what a table heading is. It is a structure. If you are a  
11 programmer, you have to know the exact name of a table.  
12 Anything different, your program doesn't work.

13 **Q.** And do you understand that Exhibit B included screenshots  
14 of every table from this public Cobb County database?

15 **A.** No, I did not see any screenshots in Exhibit B that I  
16 received.

17 **Q.** So we're clear you made a representation to the Court  
18 about a database you had actually not reviewed either on the  
19 internet or on the screenshots provided; right?

20 MR. RUSSO: Objection, Your Honor. He's asked the  
21 question. I mean, he's answered the question already about  
22 what he said. It is not relevant to the issues before the  
23 Court for the preliminary injunction, and we would ask that the  
24 Court --

25 THE COURT: What is the relevance?

1 MR. CROSS: It is relevant in two ways. One is his  
2 credibility. And the second is they continue to maintain a  
3 fact that is simply not true, and I'm trying to get to that.

4 THE COURT: And the fact is?

5 MR. CROSS: That there is a unique confidential  
6 database in the State of Georgia.

7 THE COURT: All right. I'll overrule for now.

8 But I think that the problem is I still don't know  
9 whether you are maintaining -- is your testimony that you  
10 actually never looked at the database that they referenced?

11 THE WITNESS: I have now looked at it.

12 THE COURT: All right. But when you represented to  
13 the Court that it was -- previously that it was -- it was  
14 different -- it was -- you hadn't looked at it at that time?

15 THE WITNESS: I had not looked at the MDB file, which  
16 is what they are referring to that they call the Cobb County  
17 database.

18 THE COURT: All right. Thank you.

19 THE WITNESS: I looked at the document that they  
20 documented what the tables were.

21 THE COURT: And your testimony is that what was filed  
22 only had -- because I had it in front of me as well -- was only  
23 the table names but nothing -- there were no images?

24 THE WITNESS: No. The table names that were on the  
25 document were wrong. They were different.

1 THE COURT: I understand your testimony in that  
2 regard. But that is all you saw was table names and nothing  
3 else in the exhibits they provided?

4 THE WITNESS: They had table names. They had a long  
5 version of the table names. And then they had some text that  
6 described what was in the table.

7 THE COURT: Okay.

8 **Q. (BY MR. CROSS)** So you didn't see the screenshots that  
9 were included in Exhibit B; right?

10 **A.** Correct.

11 **Q.** And your position so we understand is that what is  
12 critical in security with respect to GEMS are the table names  
13 themselves; right?

14 **A.** No.

15 **Q.** Well, that is part of it?

16 **A.** The content and the table structure.

17 **Q.** The table structure. Okay. And you're not representing  
18 to this Court that the table structure that is in GEMS today is  
19 different from what was publicly available in Cobb County or  
20 even from other states like California when it used GEMS;  
21 right?

22 **A.** I don't know what California has released.

23 **Q.** So you haven't looked at that either even though --

24 **A.** No.

25 **Q.** -- we directed you to that?

1 **A.** No.

2 **Q.** Well, you're not taking the position that it is different  
3 from the Cobb County one -- the structure; right?

4 **A.** The table names are the same in the Cobb County database  
5 as what we use in Georgia's GEMS database.

6 **Q.** The structure is the same? If you were to put those  
7 screenshots side-by-side, they are virtually identical, are  
8 they not, sir?

9 MR. RUSSO: Objection, Your Honor. They haven't  
10 authenticated this Cobb County database.

11 THE COURT: Well, he says he has now looked at it.  
12 So that is -- that is an adequate foundation.

13 **Q.** **(BY MR. CROSS)** The tables themselves are also virtually  
14 identical if we look at them side-by-side; right, sir?

15 **A.** From what I can tell, the table names are the same.

16 **Q.** You retained a company called Fortalice to do  
17 cybersecurity assessments in 2017 and 2018; right?

18 **A.** Yes.

19 **Q.** And the networks that they examined for that included  
20 elections-related networks; correct, sir?

21 **A.** Yes.

22 **Q.** The first assessment that they produced was in October of  
23 2017; right?

24 **A.** Yes.

25 **Q.** And they identified 22 -- 22 security risks in the

1 networks that they examined; right?

2 **A.** Yes.

3 **Q.** They then completed another assessment on November 30 of  
4 2018; correct?

5 **A.** Correct.

6 **Q.** And you personally requested that assessment, did you not,  
7 sir?

8 **A.** I request them every year since I have been employed by  
9 the Secretary of State.

10 **Q.** So as of November 30 of last year, as of that assessment,  
11 only 3 of the 22 risks identified in 2017 had been remediated;  
12 right?

13 **A.** I don't know that that is true. I'm not sure where you  
14 got that information.

15 **Q.** Have you not read -- well, let me take a step back.  
16 Do you know who Theresa Payton is?

17 **A.** Yes.

18 **Q.** And she actually heads up Fortalice, the company that you  
19 engaged; right?

20 **A.** Yes.

21 **Q.** Have you read the declaration that she submitted in this  
22 case?

23 **A.** No.

24 **Q.** Well, she states, of the risks outlined in the 2017  
25 report, Fortalice found that as of the November 2018 assessment

1 three risks had been remediated with compensating controls and  
2 another three were in process of being fixed.

3 You didn't read that before?

4 **A.** No.

5 **Q.** Do you have any reason to think that Ms. Payton who  
6 oversaw the risk assessment is wrong?

7 **A.** I would have to review what she said. I don't believe  
8 that we only covered three. In fact, I'm confident that we've  
9 covered more than three. And maybe her understanding of what  
10 was done wasn't clear.

11 **Q.** So the Court cannot rely on Ms. Payton's representations  
12 about the risks associated with your system, right, because she  
13 may not understand?

14 **A.** No, that is not true.

15 **Q.** Well, you just represented --

16 **A.** The risks that were identified in '17 weren't necessarily  
17 the risks that were identified in '18.

18 **Q.** I understand. I'm asking you a simple question,  
19 Mr. Beaver. I need you to listen and answer my question.  
20 Okay?

21 Are you representing to the Court that it cannot take as  
22 fact Ms. Payton's representation that 19 of the 22 risks  
23 identified in 2017 had not yet been remediated as of November  
24 30 of 2018? Can she not take that as fact?

25 **A.** I need to understand her measurement because remediate may

1 be completely fixed versus in process or partially fixed.

2 **Q.** You are aware that there was an election in the state on  
3 November 6 of last year; right?

4 **A.** Yes.

5 **Q.** So at least according to Ms. Payton, at the time that the  
6 state went through an election in which almost 4 million voters  
7 voted including at the highest levels in the state government  
8 for the governor, at least according to her, 19 of 22  
9 significant risks -- she characterized them as significant --  
10 were still outstanding as of the election; right?

11 **A.** Okay.

12 **Q.** But you just don't know one way or the other as you sit  
13 here as to whether that is right; correct?

14 **A.** I would have to see her document.

15 **Q.** Some of the risks that she identified, the first one,  
16 Number 1, the most significant was what she called widespread  
17 local administrative rights.

18 Do you recall that?

19 **A.** Yes.

20 **Q.** What that meant was that every Georgia Secretary of State  
21 user was granted administrative rights on their work stations?

22 **A.** Yes.

23 **Q.** Correct? What that means is they don't just log in and  
24 use the computer? With administrative rights, every single  
25 user has the ability to download software if they want to to



1 that computer; right?

2 **A.** Yes.

3 **Q.** Administrative rights enables them to affect the  
4 programming of that computer; right?

5 **A.** Correct.

6 **Q.** You're aware, as Fortalice pointed out, that this created  
7 a significant risk of malware infecting the networks that they  
8 were examining; correct?

9 **A.** Are we talking about the 2017?

10 **Q.** I'm talking about the risk assessment that was done in  
11 2017.

12 **A.** Yes.

13 **Q.** And, again, we have established the networks that she was  
14 examining -- Fortalice was examining included election-related  
15 networks; right?

16 **A.** Correct.

17 **Q.** In fact, Fortalice pointed out that the risk was  
18 particularly significant for the Georgia Secretary of State  
19 because not only did every user have administrative rights on  
20 their own work station but they had administrative rights for  
21 every work station in the Secretary of State's office.

22 Do you recall that?

23 **A.** Yes.

24 **Q.** Meaning that someone with access to a single work station  
25 had administrative rights to every other work station and could

1 do all the things we just talked about; right?

2 **A.** In 2017, that was correct. That has been remediated in.  
3 2017.

4 **Q.** So you know that that was remediated, but you don't know  
5 about the other 19 that Ms. Payton said were not remediated as  
6 of the election?

7 **A.** I would have to see them.

8 **Q.** Another vulnerability that Ms. Payton and her team found  
9 was that the Georgia Secretary of State relied on legacy  
10 systems and software that were no longer supported or receiving  
11 security patches even when new vulnerabilities were identified;  
12 right?

13 **A.** Correct.

14 **Q.** And this created a significant risk that a hacker could  
15 easily exploit unpatched devices, which is what you were using;  
16 right?

17 **A.** Correct.

18 **Q.** Fortalice even found security --

19 **A.** You didn't ask me whether we had remediated it.

20 **Q.** I'll get there.

21 **A.** Okay.

22 **Q.** Fortalice even asked -- I'm sorry. Fortalice even found  
23 significant cybersecurity risks with the voter registration  
24 database in Georgia; right?

25 **A.** Can you repeat that, please?

1 Q. Fortalice even found significant cybersecurity risks with  
2 Georgia's voter registration database in 2017; right?

3 A. I don't know that we would say significant. All of our  
4 systems that were identified had issues that needed to be  
5 remediated.

6 Q. But --

7 A. I won't say all. Many.

8 Q. Well, they identified -- you don't recall that they  
9 identified this one, as well, in the category of significant  
10 risk?

11 A. Okay.

12 MR. RUSSO: Objection, Your Honor. He said he  
13 didn't -- he doesn't recall the document. If he wants to put  
14 the document in front of him so he can see it, go ahead.

15 THE COURT: All right.

16 Q. **(BY MR. CROSS)** Do you recall that one way or the other?  
17 Do you need to see the document?

18 A. I need to see the document.

19 MR. CROSS: May I approach, Your Honor?

20 THE COURT: Yes. Are we talking about the 2017 --

21 MR. CROSS: Yes.

22 THE COURT: -- or 2018 report?

23 MR. CROSS: He's got the unredacted one, but he is  
24 the only one getting it.

25 Do you have a copy for the Judge?

1 THE COURT: Thank you very much.

2 Is there an exhibit number? Are you introducing  
3 this?

4 MR. CROSS: Yes. We will mark this as Exhibit 1,  
5 Your Honor.

6 MR. TYSON: Your Honor, regarding Exhibit 1, it was a  
7 document marked attorneys' eyes only during production.  
8 Mr. Cross and I had discussed preparing a redacted version that  
9 will obscure some of the more technical risk factors that  
10 Fortalice found. So obviously Mr. Beaver has the full version,  
11 but we do -- I had proposed a redacted version to Mr. Cross  
12 that we could submit publicly.

13 MR. CROSS: We're trying to grab that now. We'll get  
14 that, and then we'll come back to it.

15 THE COURT: I just for the purposes of record want an  
16 exhibit number.

17 MR. CROSS: This is Exhibit 1.

18 THE COURT: That is fine.

19 MR. CROSS: The Court will have the unredacted  
20 version. We will have a redacted version.

21 **Q. (BY MR. CROSS)** If you turn to Page 3 of the 2017 risk  
22 assessment --

23 **A.** Yes.

24 **Q.** -- there's ten categories of risks at the bottom; right?  
25 Do you see that?

1 **A.** You mean one through ten? Is that what you're talking  
2 about?

3 **Q.** Yes. At the bottom of the page.

4 **A.** Yes.

5 **Q.** Number 10 is lack of security controls for PCC, Inc.;  
6 right?

7 **A.** Yes. That is in the semi likely row.

8 **Q.** Right. That is not what I asked you.

9 **A.** Okay. I'm just verifying where I'm at.

10 **Q.** Lack of security controls for PCC, Inc., is Number 10.  
11 We're agreed on that; right?

12 **A.** Yes.

13 **Q.** Okay. And Number 10 corresponds to the security risks  
14 with the voter registration database because PCC is the company  
15 that owns and operates the voter registration database; right?

16 **A.** At the time, yes.

17 **Q.** And ten, if we look under the columns of significant, is  
18 to the far right in the risk heat map, so it is in the  
19 significant column of risk; right?

20 **A.** Yes. And it is in the row -- what is the row?

21 **Q.** Mr. Beaver, one of the concerns that was noted was the  
22 overarching concern of the lack of control and oversight that  
23 the state exercised over the registration database at the time.

24 Do you recall that?

25 **A.** Yes.

1 Q. And Fortalice urged you in October of 2017 to require the  
2 vendor, PCC, to conduct certain tasks and update its security;  
3 correct?

4 A. Correct.

5 Q. And then four months later in February of 2018, there was  
6 another assessment by Fortalice; right?

7 A. Yes.

8 Q. And at that point, they identified 15 security risks just  
9 with PCC with the voter registration database? Do you recall  
10 that?

11 A. I recall there are two different assessments that assessed  
12 different data centers. So the assessments of one do not apply  
13 to the other.

14 Q. So the assessments in February of 2018 were different  
15 additional risks with the voter registration database beyond  
16 what was identified four months earlier; right?

17 A. They are separate.

18 Q. Separate? 15 more?

19 A. We had an assessment of one data center where we have some  
20 applications running. We had an assessment of another data  
21 center where the election system is running. The election  
22 system is not in the first assessment.

23 Q. So the election system is in the second assessment where  
24 Fortalice identified in February of 2018 15 security risks;  
25 correct?

1 **A.** Is that this report? That is not this report.

2 **Q.** That is the February 2018 report. You don't recall that?

3 **A.** I do recall the February one. But I don't remember the  
4 count.

5 **Q.** So you need to see that too?

6 **A.** That would probably be good.

7 MR. CROSS: Your Honor, we'll mark this as Exhibit 2.

8 **Q.** **(BY MR. CROSS)** Mr. Beaver, you now have in front of you  
9 what is the February 2018 risk assessment that was done by  
10 Cloudburst and Fortalice; right?

11 **A.** Yes.

12 **Q.** As you pointed out, this one as you can see in the first  
13 sentence in Exhibit 2 indicates that they conducted a vendor  
14 cyber risk assessment on PCC Technology, Inc., again the  
15 company that owns and operated at least as of this time the  
16 voter registration database; correct?

17 **A.** Correct.

18 **Q.** And if you come to the second paragraph, do you see they  
19 reported Cloudburst Security suggests remediating the 15  
20 identified security risks included in this report? Do you see  
21 that?

22 **A.** Yes.

23 **Q.** Does that refresh your recollection that as of February of  
24 2018 your independent security vendor identified 15 risks that  
25 needed to be remedied?

1 **A.** Yes.

2 **Q.** In the November 2018 assessment, Fortalice did not look at  
3 PCC at all again; right? Do you remember you put that outside  
4 of scope?

5 **A.** Yes. It is a different data center.

6 **Q.** Are you aware of any attempt to hack a Georgia voter  
7 registration database around the time of the November 6  
8 election last year?

9 **A.** It wasn't a database -- I mean, the voter registration  
10 database. It was the My Voter page.

11 **Q.** Which includes voter registration information; right?

12 **A.** It is a feeder that pulls data from that.

13 **Q.** Right. The My Voter page has access -- the data moves  
14 back and forth between that and the voter registration  
15 database?

16 **A.** Not back and forth. It is a one-way transfer, meaning the  
17 voter registration system feeds an extract of the database to  
18 My Voter page. So if anything happens in My Voter page, it has  
19 no impact -- cannot have any impact on the voter registration  
20 system. It is an isolated system for security purposes.

21 **Q.** In the November 2018 assessment, Fortalice made 20  
22 additional -- beyond the reports we have looked at before, made  
23 20 additional recommendations to the Secretary of State to  
24 improve cybersecurity; right?

25 **A.** Yes.



1 **Q.** And 14 of those were considered low to no cost; right?

2 **A.** I would have to see the form again to see what the count  
3 is.

4 **Q.** Let me switch gears. You put a declaration into this case  
5 from 2000 -- in this year with the filing from the defendants?  
6 Do you recall that?

7 **A.** Yes.

8 **Q.** And that declaration contains a list of you indicate  
9 measures the Secretary of State's office has taken to increase  
10 security since Logan Lamb and others were able to access voter  
11 information hosted on the KSU election servers around August of  
12 2016; right?

13 **A.** That was the things that we did for the election center  
14 when we moved that in to the Secretary of State. So these are  
15 the things we imposed on their system.

16 **Q.** Nowhere in your declaration submitted to the Court do you  
17 specifically identify any measure in that list that was taken  
18 after September of last year -- after last year's hearing;  
19 correct?

20 **A.** Can you restate that?

21 **Q.** Nowhere in your declaration submitted to the Court among  
22 this list of things that you have done do you identify any that  
23 were taken since September of last year; correct?

24 **A.** I would have to go through the list to see when we put  
25 different things in place.

1 Q. Because your declaration doesn't actually indicate when  
2 any of those things were put in place other than to say since  
3 August of 2016; correct? Right?

4 A. Okay. I would have to see it again to see exact wording.

5 Q. I'm not going to mark it. It is already in the record,  
6 Mr. Beaver. Turn to Paragraph 3.

7 Do you see that Paragraph 3 indicates that the list of  
8 measures you identify for the Court -- all you are indicating  
9 is that they were implemented at some point after August of  
10 2016; right?

11 A. For the systems that we brought over from Kennesaw.

12 Q. So my question, just to be clear: There is nowhere in  
13 your declaration where you indicate specifically any measure  
14 that has been taken since 2000 -- September of last year;  
15 right?

16 A. I'm not sure I follow what you are asking me. If you are  
17 saying across the board or on election -- the system that we  
18 brought from Kennesaw -- are you asking about things that were  
19 put in place on that system or on all systems?

20 Q. Mr. Beaver, it is a simple question. You have got a list  
21 of things that run several pages; right?

22 A. Yes. Those were all implemented at various times over the  
23 last five years.

24 Q. Mr. Beaver, it is a whole lot easier if you just answer  
25 the question.

1           You have got a list of measures you say have been  
2 implemented since August of 2016? Yes or no?

3 **A.** Yes.

4 **Q.** Yes?

5 **A.** Yes.

6 **Q.** Nowhere in your declaration do you state to the Court that  
7 any of those measures were implemented since September of last  
8 year; correct?

9 **A.** I don't think I stated anywhere what date they were  
10 implemented.

11 **Q.** Thank you. You submitted a 2018 declaration in this case?  
12 Do you recall that?

13 **A.** Yes.

14 **Q.** Do you recall that?

15           One of the things you represented to the Court at that  
16 time was we take every reasonable precaution, meaning the  
17 Secretary of State's office; right? We take every reasonable  
18 precaution to protect our systems from a cyber incident. Do  
19 you recall that?

20 **A.** Yes.

21 **Q.** But you didn't disclose to the Court that only a year  
22 earlier -- less than a year earlier your independent vendor had  
23 identified 22 significant risks with your systems, including  
24 election-related networks? That did not appear in your  
25 declaration, did it, sir?

1 **A.** Security is not a --

2 **Q.** Yes or no. That did not appear in your declaration?

3 **A.** It did not appear.

4 **Q.** You go on in that same sentence as an example of one of  
5 the ways you protect the system -- you say, including  
6 conducting regular cyber assessments with penetration testing;  
7 right?

8 **A.** Yes.

9 **Q.** So you were representing to the Court that penetration  
10 testing is one of the ways that you confirm that your system is  
11 secure; right?

12 **A.** That is one of the ways.

13 **Q.** In the October 2017 assessment, again less than a year  
14 before your August 2018 declaration to the Court, Fortalice  
15 actually conducted one of those penetration tests; correct?

16 **A.** Yes.

17 **Q.** And it was successful? They penetrated the network,  
18 didn't they, sir?

19 **A.** They -- not the election system network. They penetrated  
20 the Secretary of State data center, which does not have the  
21 election system in it.

22 **Q.** They penetrated --

23 **A.** There are two different data centers I said earlier, the  
24 one at the Secretary of State's office which holds our  
25 corporations database, our professional licensing database, our

1 website, but does not contain the elections -- the voter  
2 registration system.

3 The system they penetrated was the one from the Secretary  
4 of State's data center. That was not the election system.

5 **Q.** Is the answer to my question yes, they did a penetration  
6 test, like you represented to the Court, that allowed them to  
7 penetrate some aspect of the Secretary of State's network?

8 That is true; right, sir?

9 **A.** That is very true.

10 **Q.** And, in fact, the penetration enabled them to obtain  
11 domain administrator rights on the network that they  
12 penetrated; correct?

13 **A.** Correct.

14 **Q.** And we've talked about the expansive abilities of  
15 administrator rights already. That is what they obtained;  
16 right?

17 **A.** Correct.

18 **Q.** In fact, they point out they were able to gain access to  
19 network security systems? That was one of the things they  
20 identified; correct?

21 **A.** Correct.

22 **Q.** They point out that they were able to review the  
23 enterprise architecture and system configurations; correct?

24 **A.** Correct.

25 **Q.** And so when you represented to the Court that one of the

1 measures that you take to secure the information technology,  
2 the networks for the Secretary of State was penetration  
3 testing, you did not disclose to the Court that the most recent  
4 penetration testing that had been done in October of 2017 gave  
5 an independent firm administrator access over the network?  
6 That does not appear in your declaration for the Court, did it,  
7 sir?

8 **A.** No. They didn't ask that question.

9 **Q.** Who is they? The lawyers who asked you to write it?

10 **A.** Asked did we do this. Yes, we did. Did we fix the  
11 penetration issue? Yes, we did. That is why we hire  
12 Fortalice.

13 **Q.** But as of the November 6 election last year, according to  
14 Fortalice that you relied on for that, 19 of the 22 risks were  
15 unremediated? We're clear on that; right?

16 **A.** Administration rights was remediated prior to that.

17 **Q.** That is 1 of the 3 out of the 22; correct?

18 **A.** I would have to see the three again. I don't know what  
19 are the three you are speaking of.

20 **Q.** Well, Ms. Payton will testify. She can clear it up.

21 Do you know Dr. Michael Shamos?

22 **A.** I know of him.

23 **Q.** And you are aware that he's an expert that the state has  
24 offered on election security in this case?

25 **A.** Yes.

1 Q. Did you review his deposition transcript?

2 A. Yes.

3 Q. You've previously pointed out that one of the measures  
4 taken to secure elections in this state are parallel testing;  
5 right?

6 A. Yes.

7 Q. And you understand that Dr. Shamos testified under oath  
8 that the parallel testing done in the state is ineffective?  
9 Are you aware of that?

10 A. I thought the word was insufficient.

11 Q. Okay. Well, does ineffective and insufficient mean  
12 something different to you?

13 A. Yes.

14 Q. Okay. Let's put it this way. Do you recall him  
15 testifying that he has no confidence in a parallel test that  
16 tests only 1 out of the some 70,000 DREs you have in the state?  
17 Do you recall that, sir?

18 A. I do.

19 Q. Do you disagree with Dr. Shamos? Do you think he is wrong  
20 about that?

21 A. He is the expert.

22 Q. So you do not disagree with him?

23 A. I do not disagree.

24 Q. Mr. Beaver, if the Court were to order the state to  
25 implement hand-marked paper ballots for elections this year,

1 would you make every effort to comply with that order?

2 **A.** I think we would have to make all efforts. That doesn't  
3 mean it would be successful. Without processes in place, we  
4 definitely would have issues. In fact, the issues may be  
5 major.

6 **Q.** You're not suggesting you would violate a court order?

7 **A.** I just said we would.

8 **Q.** You would comply with the order; right?

9 **A.** We would do it to the best of our ability. That doesn't  
10 mean it would be successful.

11 **Q.** I'm sorry. As the CIO of the Secretary of State's office,  
12 you don't have confidence in your ability to comply with a  
13 court order; is that right?

14 **A.** Somebody can ask us to do --

15 **Q.** Yes or no?

16 **A.** -- something that is not possible.

17 **Q.** But you haven't offered any opinion in the declaration in  
18 this case that it would be impossible for you -- impossible for  
19 you to comply with a --

20 **A.** I just stated without a process --

21 **Q.** You have got to let me finish the question. Okay.

22 You put sworn testimony into this case. Nowhere in that  
23 declaration do you offer an opinion or claim to the Court that  
24 if the Court were to order the state to use hand-marked paper  
25 ballots in the upcoming elections that it would be impossible



1 for the state to do that? That is not an opinion that appears  
2 in your sworn testimony, does it, sir?

3 **A.** Correct.

4 MR. CROSS: Thank you.

5 CROSS-EXAMINATION

6 BY MR. BROWN:

7 **Q.** Mr. Beaver, my name is Bruce Brown. I represent the  
8 Coalition plaintiffs in this case. And I have a few questions  
9 for you.

10 Since March of 2017, has the Secretary of State undertaken  
11 remediation of any of the central servers or county servers to  
12 address the impact of the 2016, 2017 exposure of the KSU server  
13 to the internet?

14 **A.** Yes.

15 **Q.** Has it wiped the servers?

16 **A.** When we took over responsibility for KSU, we brought  
17 nothing with them. We started with brand-new hardware, a  
18 brand-new operating system. We went back to the original  
19 software on the original CD and loaded that from scratch. We  
20 started with a clean slate.

21 **Q.** But you did not do that in any of the 159 counties, did  
22 you?

23 **A.** No.

24 **Q.** You testified about the My Voter page and how it is a  
25 one-way recipient of information from the central registration

1 system; correct?

2 **A.** Yes.

3 **Q.** If someone messed with the My Voter page though, voters  
4 who were looking up to see where they should vote could get bad  
5 information; correct?

6 **A.** I don't know.

7 **Q.** Okay. Now, as the chief information officer at the  
8 Secretary of State, you will be the leading person at the  
9 Secretary of State's office for the state's new implementation  
10 of their new system; correct?

11 **A.** Can you restate that?

12 **Q.** You are going to be in charge from the Secretary of  
13 State's office of the new -- the new machine -- the new system  
14 that the state is purchasing; correct?

15 **A.** I have the IT responsibilities. Not operational. Not  
16 application.

17 **Q.** Okay. And in terms of your IT responsibilities -- I mean,  
18 you're aware that there is no contract in place yet; correct?

19 **A.** Correct.

20 **Q.** And that after there is a contract in place, there will be  
21 a bid protest period; correct?

22 **A.** Correct.

23 **Q.** And that after a bid protest period or at some point, the  
24 new system will have to be certified; correct?

25 **A.** Correct.

1 Q. And the certification protocols are in the regulations;  
2 correct?

3 A. Yes. In fact, I believe it has already been certified.  
4 But the version we will get will have to be recertified.

5 Q. And certification is not just a rubber stamp, is it?

6 A. There is testing.

7 Q. Okay. And that there will be -- and I believe that the  
8 new system is 30,000 ballot marking devices?

9 A. I don't have the count. You would have to ask somebody  
10 like Michael Barnes that number.

11 Q. And 7500 scanners?

12 A. Okay. I'll take your word for it.

13 Q. But you know it is going to be in 159 counties, and each  
14 of the counties will have to have their own servers and their  
15 own election management system; correct?

16 A. Correct.

17 Q. And the counties themselves will have to arrange for  
18 purchase of maintenance and service on their gear; correct?

19 A. All of this equipment will be under warranty, and support  
20 will be included on that. So --

21 Q. But the counties will have to pick up the bill for some of  
22 that; right?

23 A. Not in the first -- I think the first two years, no.

24 Q. But after that, they will?

25 A. I don't know what is going to happen after the first two

1 years.

2 **Q.** And the -- I know a vendor hasn't been selected. But from  
3 what I've read, these systems run on Windows 7; correct?

4 **A.** I don't know what will be run. We haven't declared who  
5 the vendor is. So until that is declared, we won't know what  
6 it runs on.

7 **Q.** Are any of the vendors that are in the bidding run on  
8 anything newer than Windows 7?

9 **A.** My understanding --

10 MR. RUSSO: Objection, Your Honor. The BMDs are not  
11 at issue in this case.

12 THE COURT: What is the relevance to the question?

13 MR. BROWN: Your Honor, the state's main defense is  
14 that don't grant the plaintiffs' relief because we will fix it  
15 in 2020 with the new system. So therefore if they want to take  
16 the new system off the table entirely, then they have no  
17 defense in this case. But they are saying --

18 THE COURT: All right. Well, you can pursue this to  
19 a limited degree.

20 MR. BROWN: Thank you, Your Honor.

21 **A.** I have heard that some systems that were bid run on  
22 Windows 10.

23 **Q.** **(BY MR. BROWN)** And from your perspective, the  
24 implementation schedule is aggressive; correct?

25 **A.** It is tight.

1 Q. It is tight? Is that what you said?

2 A. Yes.

3 Q. And --

4 THE COURT: I would appreciate it if we wouldn't have  
5 any comments via laughing unless something is genuinely funny.  
6 Everyone else will know it is funny as in that no one has a  
7 case to proceed with.

8 Go ahead.

9 MR. BROWN: Thank you, Your Honor.

10 Q. **(BY MR. BROWN)** So this tight schedule calls for the first  
11 statewide use of the system in the 2020 presidential primaries;  
12 correct?

13 A. No.

14 Q. What is wrong with that?

15 A. We will be using it this year.

16 Q. Statewide?

17 A. No.

18 Q. So the first statewide use of the system will be the  
19 presidential primaries; is that right?

20 A. That is my understanding.

21 Q. And that is if everything goes right?

22 A. Yes.

23 Q. And if something goes wrong, you will have to use the  
24 current DRE system?

25 MR. RUSSO: Objection, Your Honor. He has already

1 testified that he is not in charge of implementing the new  
2 system.

3 **Q.** (BY MR. BROWN) But if an injunction isn't granted --

4 **A.** I am not in charge. I'm the IT manager for the Secretary  
5 of State. Not operational. I do not do contracts.

6 **Q.** Who is the operational person or people?

7 **A.** That would fall under the elections director and the  
8 Center for Elections.

9 **Q.** Okay. That would be respectively Mr. Harvey and  
10 Mr. Barnes?

11 **A.** Yes.

12 **Q.** Okay. Who else is involved in the implementation besides  
13 those two and you?

14 **A.** We'll probably have a project team that will run under the  
15 Secretary himself.

16 MR. BROWN: Thank you very much.

17 DIRECT EXAMINATION

18 BY MR. RUSSO:

19 **Q.** Good morning.

20 **A.** Good morning.

21 **Q.** Mr. Beaver, you testified earlier that you are the CIO of  
22 the Secretary of State's office; isn't that right?

23 **A.** Yes. That is correct.

24 **Q.** And as CIO, your job is not to implement paper ballot  
25 systems; is that correct?

1 MR. CROSS: Objection, Your Honor. Leading. This  
2 is --

3 **Q.** (BY MR. RUSSO) What is your role as CIO?

4 **A.** I run the IT equipment for the state. That includes the  
5 data systems of each of the agencies.

6 **Q.** Now, plaintiffs' counsel asked you about Fortalice  
7 reports. Do you recall that?

8 **A.** Yes.

9 **Q.** And remediation of -- remediation of issues that were  
10 identified by Fortalice; correct?

11 **A.** Correct.

12 **Q.** Now, do you know -- do you know when Fortalice writes its  
13 reports for the state if those reports include partial  
14 remediation of any identified issues?

15 **A.** Yes. They actually include three phases of remediation.

16 **Q.** Can you explain that for us?

17 **A.** Phase 1 is what you can do immediately to have a big  
18 impact. Phase 2 is essentially getting close to the end.  
19 Phase 3 is completely solving the problem.

20 I can give you an example.

21 **Q.** Sure.

22 **A.** A website may be running on an old antiquated application  
23 that can't be patched. To replace it may take multiple years.  
24 But you can remediate it by putting it outside of your firewall  
25 in the DMZ so that if it got hacked it wouldn't impact anything

1 else. So moving it out reduces the risk but doesn't totally  
2 remediate the problem.

3 Security is all about reducing risk. There will always be  
4 problems.

5 **Q.** And the Secretary of State's office hires Fortalice to  
6 identify risks; correct?

7 MR. CROSS: Objection. Leading, Your Honor.

8 THE COURT: Sustained.

9 **Q. (BY MR. RUSSO)** What is the reason why the Secretary of  
10 State's office hires Fortalice?

11 **A.** Fortalice is a very skilled company in identifying all  
12 types of cybersecurity issues. We depend on them to help us  
13 find where we need direction.

14 **Q.** I want to ask you about some security measures that have  
15 been implemented by the Secretary of State's office.

16 What is eNet?

17 **A.** eNet is the Georgia voter registration system.

18 **Q.** And who can access eNet?

19 **A.** Only state employees and county election officials.

20 **Q.** And have new security measures been implemented to ensure  
21 only authorized users access eNet?

22 **A.** Yes. Over the last five years, we have implemented many  
23 different kinds.

24 **Q.** Can you please tell us about some of those?

25 **A.** Multifactor authentication for sign-in. Password



1 strength. Password -- basically if you don't use the system in  
2 X number of days, we will turn you off. We go through a  
3 process that says -- reviewing who has access to eliminate  
4 people that are no longer part of the eNet community.

5 THE COURT: Could we stop here for a second.

6 It would be more helpful to the Court if you could  
7 identify when your -- what is your recollection as to when each  
8 of these measures were taken. Because I have the Fortalice  
9 reports in front of me. And I'm trying to measure what you are  
10 saying relative to what the reports say also.

11 **Q. (BY MR. RUSSO)** Do you know when each of those measures  
12 were implemented?

13 **A.** Multifactor was a little over a year ago. Strength in  
14 password was probably close to four years ago. Retirement of  
15 people that don't need access was done five years ago. Review  
16 or changing the timeout date was done about three years ago.

17 **Q.** What about any more recent actions that have been taken?

18 **A.** I would have to go back through my notes.

19 **Q.** Now --

20 THE COURT: Now, we were just talking about eNet.  
21 You mean the voter registration database?

22 THE WITNESS: The voter registration system. That is  
23 not the GEMS system.

24 THE COURT: I understand. I'm sorry to screw up the  
25 timing. But I'm a little bit confused because Fortalice

1 indicated that evaluating PCC's systems at least in its 2018  
2 report was outside the scope of the assessment given in the  
3 2018 midterm and then they also indicated that you -- is that  
4 right?

5 THE WITNESS: Yes.

6 THE COURT: And even at that time, they had obtained  
7 administrative access because of -- an unprivileged access. So  
8 are we talking about a period of time after the report that was  
9 done in November 2018?

10 THE WITNESS: Can you reference which one you're  
11 looking at?

12 THE COURT: I'm looking at the 2018 report --  
13 November 2018 report. Among the things they indicated was --  
14 you know, some things were underway in terms of strengthening  
15 the password policy. But they also indicated that Fortalice  
16 had obtained domain administrative access at Page 9.

17 THE WITNESS: So the event where Fortalice was able  
18 to get domain access was their original report?

19 THE COURT: No. The second report. November of  
20 2018.

21 THE WITNESS: I don't have that one in front of me.

22 THE COURT: All right. We'll follow up later. I  
23 don't want to be --

24 MR. CROSS: He has that report, Your Honor. The  
25 November 2018 one. It is one of the ones. I think it is

1 Exhibit 2.

2 THE WITNESS: I have a February one and an  
3 October one.

4 THE COURT: All right. You-all can follow up on this  
5 later on.

6 **Q. (BY MR. RUSSO)** Mr. Beaver, has the Secretary of State's  
7 office implemented any security measures to detect malware on  
8 eNet?

9 **A.** Yes. We have implemented end point protection, as well as  
10 malware protection applications. They do two different things.

11 **Q.** Can you tell us --

12 **A.** One detects known malware that could arrive on the system  
13 or download to the system. End point protection actually looks  
14 at activity that is outside of the norm of that system. So  
15 this would be useful for malware that has not been identified.

16 **Q.** And do you know -- are you aware of the Secretary of State  
17 putting the end point protection requirements into rule, in  
18 fact?

19 **A.** Yes. As part of the rule that was put in place this year,  
20 that was one of the things that was established as a rule.

21 **Q.** And you recall that rule? Were you involved in drafting  
22 that rule?

23 **A.** I was.

24 **Q.** And I want to hand you the -- hand you this rule.

25 Mr. Beaver, is this the rule you are referring to?

1 **A.** Yes, it is.

2 **Q.** Rule 590-8-3-.01?

3 **A.** Yes.

4 **Q.** And I want to direct your attention to Subsection B-2 of  
5 this regulation regarding the maintenance of security standards  
6 with the Georgia voter registration system. Do you see that?

7 **A.** Yes, I do.

8 **Q.** That involves anti-malware software and end point  
9 protection; correct?

10 **A.** Yes.

11 **Q.** And is this the anti-malware and end point protections  
12 that you were referring to?

13 **A.** Yes, it is.

14 **Q.** Mr. Beaver, what would -- strike that.

15 Mr. Beaver, if the file is being exported -- this rule  
16 refers to export files. If a file is being exported out of the  
17 GEMS system, how would this software affect that?

18 **A.** As a file gets created, it has to be put someplace. So it  
19 is first created on the server. Once that file is exported out  
20 of the application and put on the server, the first thing the  
21 system does is it scans it for any malware.

22 Then when that file gets moved to someone's desktop, such  
23 as someone in the election center because they want to take it  
24 and move it to the GEMS server, once it lands to their desktop,  
25 it will get scanned again.

1           If they want to move it then on to the GEMS server, the  
2 policy of what Michael Barnes uses is that he will take a USB  
3 that he regularly uses. He will format it. The machine will  
4 automatically encrypt it. He does not have a choice. It  
5 automatically encrypts that drive prior to it being put on that  
6 drive.

7           If there is anything on that drive other than what he has,  
8 especially an active file, meaning something that runs like  
9 malware, the end point protection will detect that and stop the  
10 activity.

11 **Q.**    So it wouldn't be able to transfer over? Is that what you  
12 are saying?

13 **A.**    Correct.

14           MR. CROSS: Your Honor, he can't lead his own  
15 witness.

16           MR. RUSSO: No further questions, Your Honor.

17           MR. CROSS: Two brief points, Your Honor. Let me  
18 just grab the November -- my apologies, Mr. Beaver. I thought  
19 we had handed you that.

20   REXCROSS-EXAMINATION

21 BY MR. CROSS:

22 **Q.**    Before we look at that report, one clarifying question,  
23 Mr. Beaver. You talked about end point protection; right?

24 **A.**    Yes.

25 **Q.**    End point protection is not available -- it is not present

1 on the GEMS system; correct?

2 **A.** Correct. The GEMS is an air-gapped environment. For end  
3 point protection to work, it has to be tied to --

4 **Q.** That is not my question, sir. We're going to talk a lot  
5 about whether that system is actually air gapped today.

6 Just to clarify, your belief is that your GEMS system is  
7 air gapped; correct?

8 **A.** Correct.

9 **Q.** Did you read Dr. Shamos' description of what it means to  
10 be air gapped in his deposition?

11 **A.** I don't recall exactly what he said.

12 **Q.** Do you recall when you read his deposition thinking to  
13 yourself he is wrong about what it means to be air gapped? Did  
14 that strike you as you read his deposition?

15 **A.** No.

16 **Q.** All right. Turn briefly to what we'll mark as Exhibit 3,  
17 the November 2018 assessment. As part of this assessment,  
18 Fortalice also did penetration tests among other tests;  
19 correct?

20 **A.** Yes.

21 **Q.** Turn to Page 22 if you would. Do you see the sentence at  
22 the bottom under the screenshot -- it says at this point. Do  
23 you see that?

24 **A.** Yes.

25 **Q.** Here Fortalice refers at this point -- this is November 30

1 of 2018. That is the report you have in front of you; right?

2 **A.** Yes.

3 **Q.** Here Fortalice reports after conducting various tasks  
4 including penetration tests, at this point Fortalice controlled  
5 the domain and concluded testing. Did I read that correctly,  
6 sir?

7 MR. RUSSO: Your Honor, objection.

8 **Q.** **(BY MR. CROSS)** Did I read that correctly, sir?

9 MR. RUSSO: That is outside the scope of my cross of  
10 Mr. Beaver.

11 THE COURT: Well, you spoke about remediation, and so  
12 I'm going to allow it. But you're not going to go extensively.

13 MR. CROSS: That is my last question.

14 **Q.** **(BY MR. CROSS)** Did I read that correctly?

15 **A.** That you read correctly.

16 MR. CROSS: Thank you.

17 THE COURT: All right. I have a few questions that  
18 won't be counted against anyone. My other question we'll try  
19 to also -- I think Ms. Cole may have gotten me the estimate of  
20 the time to count against anyone.

21 EXAMINATION

22 BY THE COURT:

23 **Q.** I think that Exhibit 3, the November 2018 report, will  
24 reflect that what I indicated before that -- that the review of  
25 the PCC system, which dealt with the voter registration system,

1 was outside its scope.

2 But in -- what I am trying to understand is something  
3 about the November 2018 system and where you are going. My  
4 understanding from reading this report is that the Secretary of  
5 State's office doesn't actually under its contract have the  
6 authority to audit in an active way the PCC system; is that  
7 right?

8 **A.** Yes.

9 **Q.** And is that still true?

10 **A.** No.

11 **Q.** Okay. When did that end that you -- when did you start  
12 having the actual authority to audit the PCC system?

13 **A.** Soon after this report.

14 **Q.** Okay. And -- but soon after the February 2018 report?

15 **A.** The November.

16 **Q.** The November 2018 report?

17 **A.** Correct.

18 **Q.** All right. And has there been an audit since then where  
19 there was active efforts actually looking at the way the data  
20 is handled?

21 **A.** We have remediated since then these issues. We're in the  
22 process of moving that data center to complete Secretary of  
23 State control.

24 **Q.** So who has it now? Is it part in PCC and part with the  
25 Secretary of State, or where is it at?



1 **A.** We are right in the middle. We started July 1 to move it  
2 from their control.

3 **Q.** Of 2019?

4 **A.** Yes.

5 **Q.** Okay.

6 **A.** Contractually, we were tied to them until June of 2019.

7 **Q.** So up through June of 2019, the state couldn't actively  
8 audit PCC's data and method of management of the voter  
9 registration database?

10 **A.** Under contract, no. We did get the ability to do that in  
11 a limited sense. That is how we were able to start identifying  
12 things we needed to fix.

13 **Q.** And that was in the February -- reported in the  
14 February 2018 report, but it wasn't within -- the follow-up  
15 wasn't in the November 2018 report that Fortalice did or  
16 Cloudburst did; is that right?

17 **A.** Correct.

18 **Q.** In the February of 2018 report, there was a whole host of  
19 concerns that the Cloudburst security team working with  
20 Fortalice had about the accessibility of the voter database; is  
21 that right? I'm looking at Page 11 of that report.

22 **A.** Yes. They identified that that remote access was an issue  
23 that needed to be worked on.

24 **Q.** And they indicated that the firewall permitted a list of  
25 IP addresses access to the internal systems bypassing the VPN

1 and that PCC does not block connections to the VPN from IP  
2 addresses of known threat sources or foreign countries; is that  
3 right?

4 **A.** That is what they identified.

5 **Q.** All right. So what I would like to understand is what --  
6 I know that wasn't brought to my attention in the last hearing  
7 in September of 2018 by the state. And I don't believe that  
8 the plaintiffs had access to this information.

9 So I'm trying to understand was this -- I'm really trying  
10 to understand why it wasn't brought to my attention, as much as  
11 anything else.

12 You were aware of it, I gather?

13 **A.** This is a working list of what we were working on.

14 **Q.** And would it be fair to say because the PCC system's  
15 management was private that there was -- until you could take  
16 it over, let's say, in July of this year that there are still  
17 limits in what you could do with the PCC registration system --  
18 voter registration system?

19 **A.** Starting after the first report, we were able to gain  
20 better control and put essentially our security policies in  
21 place. We put monitoring services in place on top of their  
22 system to monitor what was going on. We put things like the  
23 Albert sensor from MS-ISAC in place there. We have an outside  
24 firm that does now monitoring all traffic in and out.

25 **Q.** But was all that in place in the early fall of 2018?

1 **A.** Yes.

2 **Q.** In September of 2018 when we had that hearing?

3 **A.** I think it was implemented in the early part of '18.

4 **Q.** Well, this was brought to your attention in the early part  
5 of '18 according to this report. I'm referencing the  
6 Cloudburst 2018 --

7 **A.** And we quickly implemented a lot of things.

8 **Q.** But then in November of 2018, you didn't follow up on that  
9 in this -- you didn't have -- you didn't contract with  
10 Fortalice to go and follow up on whether, in fact, it was  
11 functioning as you apparently believe it was in November of  
12 2018?

13 **A.** All through 2018, we had weekly calls with Fortalice as we  
14 worked through remediation there. So the assessments -- they  
15 knew exactly what was going on because they were helping us  
16 through this remediation process.

17 We knew we were going to switch over to a new data center  
18 that was Secretary of State controlled. So assessing something  
19 that you are about to turn off, especially by a company that  
20 was already doing the work to fix it, was not something that we  
21 needed to do.

22 **Q.** Well, what happened, for instance, when they evaluated in  
23 February of 2018 that the PCC Georgia Secretary of State's  
24 environment relating to the voter registration system was  
25 directly connected infrastructure that hosts similar voter

1 applications in Texas? And they indicated there was risk of  
2 exposure in the systems because an attacker who had gained  
3 access to one environment could likely gain access to the  
4 other.

5 Was that immediately terminated? What happened?

6 **A.** Yes. That was immediately within about a week and a half.  
7 PCC was sharing the data center between two states that they  
8 were hosting. We didn't want that.

9 **Q.** So the Cloudburst Security system team also identified  
10 that the system used software -- unsupported older software to  
11 operate internet-facing web applications?

12 **A.** I believe that is the JBoss software. Yes.

13 **Q.** Was that changed by September or October of 2018?

14 **A.** It was not. It was not a remediation to change it because  
15 it would break the application. So we remediated it a  
16 different way. We used something called Cloudburst, which  
17 looks at the data coming in and out and looks for the types of  
18 traffic where somebody would be trying to hack, such as SQL  
19 injection and cross-site scripting. That is the weaknesses  
20 those patches were trying to repair. There are multiple ways  
21 to remediate systems.

22 **Q.** Would it be fair to say that when, in fact, this one  
23 evaluation that Cloudburst itself did in February 2018 of PCC  
24 Technology relating to the voter registration database had, I  
25 think, identified 15 very serious issues relating to this --

1 that none of that was brought to the Court's attention?

2 **A.** Okay. Yes.

3 **Q.** Then back in 2000 -- in the report that was done by  
4 Fortalice in November of 2018, Fortalice itself reported to you  
5 that Fortalice identified several instances of voter  
6 registration data hosted on file shares. This was as of  
7 November of 2018. And I'm referring to Page 19 of the  
8 November 2018 report.

9 **A.** Is this the November --

10 **Q.** The November one. So I'm referring to Page 19. And the  
11 text there says, sensitive information stored insecurely. It  
12 should be noted Fortalice did not check to see if the voter  
13 information observed was redacted or complete. Additionally,  
14 Fortalice's search was not exhaustive. An additional review  
15 should be performed by SOS Georgia IT staff in order to  
16 identify all instances of sensitive data stored insecurely.

17 This related to voter registration system PCC; is that  
18 right?

19 **A.** Yes.

20 **Q.** But they weren't charged with that, so they didn't do  
21 more?

22 **A.** Correct.

23 **Q.** Thank you very much. And so as of July 1, you've taken  
24 over everything that PCC was doing -- the state has? July 1 of  
25 2019?

1 **A.** The hosting of the system.

2 **Q.** The hosting.

3 **A.** Not the application.

4 **Q.** Who is dealing with that? It is still PCC's application?

5 **A.** Yes. So they are still responsible for the maintenance  
6 and support of the application.

7 **Q.** And have there been requirements of change about this -- I  
8 mean, about the application and updating it or -- because we  
9 were talking before about outdated software again in the  
10 2019 -- just a few minutes ago.

11 **A.** Yes.

12 **Q.** So what has changed about the software?

13 **A.** We have gone through patching of all of the systems.  
14 Those systems that can't have the patching, such as the JBoss,  
15 we have remediated differently. Meaning if you can't patch  
16 something --

17 **Q.** Patch and update it?

18 **A.** Update it. Because some applications need a feature  
19 function or can't deal with a feature -- the new features of  
20 new patches. Then you need to remediate in a different way.  
21 And as I said, we have used an alternative way to remediate  
22 that. But other types of patching we've already done.

23 **Q.** And are there any audit reports here that have not -- that  
24 have been given to the Court or that are available that address  
25 the efficacy of that patching and remediation process? Because

1 obviously the voter registration database and its integrity and  
2 whether people appear properly on the database is a big deal.

3 **A.** Uh-huh (affirmative).

4 **Q.** Are there any other updated reports in terms of evaluating  
5 that available that I haven't seen? Because I haven't seen  
6 anything beyond what the -- the three ones I have referenced.

7 **A.** There are no other reports.

8 **Q.** Thank you. When does that contract extend to, by the way,  
9 the one with PCC?

10 **A.** The hosting ended on June 30.

11 **Q.** Right. But the use of the software?

12 **A.** The software continues on. We renew it every year.

13 **Q.** And so was it renewed on July 1st?

14 **A.** Yes, it was.

15 THE COURT: Thank you.

16 MR. CROSS: Unless the Court has further questions, I  
17 believe the witness can step down, Your Honor.

18 THE COURT: All right. Very good. The witness is  
19 excused -- I didn't hear from Mr. Brown.

20 MR. BROWN: No more questions, Your Honor.

21 THE COURT: Mr. Russo?

22 MR. RUSSO: No more questions, Your Honor.

23 THE COURT: All right. Very good. Thank you very  
24 much.

25 MR. CROSS: If Your Honor wants to continue, we'll

1 call our next witness. This one I think -- for us it will be  
2 short.

3 THE COURT: I think we need a five-minute restroom  
4 break here. Unless somebody has to go to the restroom, I would  
5 just encourage you not to or else it is very hard to get  
6 everyone back in here. If you do, of course, go ahead and make  
7 use. Because I'm going to keep on running likely until 1:00.

8 MR. CROSS: Great. Thank you, Your Honor.

9 THE COURT: All right.

10 **(A brief break was taken at 11:45 A.M.)**

11 THE COURT: Have a seat. Before we start, I would  
12 appreciate if the state would provide me a copy of the new  
13 contract with PCC. Can you provide me a copy of the PCC  
14 contract by this evening? Is that feasible?

15 MR. RUSSO: Yes, Your Honor. I think we can probably  
16 pull that together pretty quickly.

17 THE COURT: Okay. And if I understand correctly,  
18 that is continuing and therefore whatever their software is in  
19 use will be in use during at least -- in the next year that  
20 they are using?

21 MR. TYSON: Yes, Your Honor. The eNet software is  
22 widely used across the country. And yes, it will be in use for  
23 at least the next year.

24 THE COURT: Thank you.

25 COURTROOM DEPUTY CLERK: Please raise your right



1 hand.

2 **(Witness sworn)**

3 COURTROOM DEPUTY CLERK: Please have a seat. Loudly  
4 and clearly state your name, and please spell your last name  
5 for the record.

6 THE WITNESS: My name is Michael Leon Barnes,  
7 B-A-R-N-E-S.

8 Whereupon,

9 MICHAEL LEON BARNES,

10 after having been first duly sworn, testified as follows:

11 CROSS-EXAMINATION

12 BY MS. BENTROTT:

13 **Q.** Good morning, Mr. Barnes.

14 **A.** Good morning.

15 **Q.** Nice to see you again.

16 **A.** Good to see you.

17 **Q.** I'm Jane Bentrott on behalf of Curling plaintiffs,  
18 Morrison & Foerster.

19 Mr. Barnes, as part of your current practice at the  
20 Secretary of State's office, the Secretary of State's office  
21 prepares ballots for review by the counties; is that correct?

22 **A.** That is correct.

23 **Q.** And to do so, they prepare PDFs of the ballots and send  
24 those to the counties for their review; correct?

25 **A.** That is correct.

1 Q. And the PDFs of the ballots, they show how the ballot will  
2 appear as a paper optical scanned ballot; correct?

3 A. That is correct.

4 Q. And so counties don't review the ballot proofs as they  
5 would appear on a DRE screen; correct?

6 A. That is correct.

7 Q. The state prepares paper voter certificates for use in  
8 elections; correct?

9 A. That is correct.

10 Q. And the state supplies those paper voter certificates to  
11 all the counties; correct?

12 A. That is correct.

13 Q. And each voter completes one of these paper forms by hand  
14 when they enter a polling location; correct?

15 A. That is correct.

16 Q. And each voter must complete and sign this paper form  
17 before they are checked in on ExpressPoll and before they can  
18 vote; correct?

19 A. Correct.

20 Q. All of the counties in Georgia currently have an inventory  
21 of optical scanners; correct?

22 A. Counties have a minimum of three optical scanners -- they  
23 should have -- in their inventory. That is correct.

24 Q. And those optical scanners were designed to be precinct  
25 count optical scanners; correct?

1 **A.** They were designed as precinct level count, yes.

2 **Q.** The Center for Election Systems learned in 2016 from Logan  
3 Lamb that there were many files available through the internet  
4 that should not have been accessible; correct?

5 **A.** I recall us receiving a phone call or my executive  
6 director receiving a phone call from Mr. Lamb stating that he  
7 was a security expert and was wishing to speak with the Center  
8 for Elections Systems to see what assistance he may be able to  
9 provide to the center and that he had visited our website,  
10 elections.kennesaw.edu, and had seen that there were files  
11 seemingly accessible.

12 **Q.** And you learned that he was able to access those files  
13 without any user names or passwords; correct?

14 **A.** I just know that he had the phone call with Mr. King.  
15 What he told Mr. King in relation to what he was able to  
16 access, how he accessed it, I cannot speak to.

17 **Q.** But this is something that you learned from Mr. King;  
18 correct?

19 **A.** That is correct.

20 **Q.** And you don't know of any forensic work that was done to  
21 see if you could check the files that Mr. Lamb had downloaded;  
22 correct?

23 **A.** I do not know of any steps. I know that I did not take  
24 any steps. I do not know what Mr. King or others within my  
25 office examined after that phone call in relation to what was

1 accessible.

2 **Q.** And so you are not aware of any steps that were taken by  
3 anyone to examine what files were accessible?

4 **A.** I do not know.

5 **Q.** And you're not -- you don't know if any effort was made to  
6 determine how long prior to August 26 -- 28, 2016, someone  
7 would have had the same access to those files that Mr. Lamb  
8 had; correct?

9 **A.** I do not know.

10 **Q.** You don't recall participating in any discussions about  
11 investigating the cause of those vulnerabilities; correct?

12 **A.** I do not recall any discussion about investigating the  
13 system or its setup in that nature.

14 **Q.** You don't recall participating in any discussions  
15 regarding any potential effort to determine the extent of those  
16 vulnerabilities; correct?

17 **A.** I do not recall.

18 **Q.** You don't recall participating in any discussions to  
19 determine whether there was any additional unauthorized access  
20 to the system; correct?

21 **A.** I do not recall.

22 **Q.** The DRE memory cards that are used in Georgia's elections,  
23 they have not been collected by the state for any potential  
24 testing or reformatting since 2013 or 2015; is that correct?

25 **A.** That is correct.

1 Q. The internal memory of the DRE voting machines themselves  
2 has never been tested or checked in any way; is that correct?

3 A. The internal memory -- the election files that are  
4 collected after each election, in some cases the county may  
5 have to access that file and bring it forward, if something  
6 happened to a memory card that had been previously in use for  
7 an election.

8 But has there been an inspection of that by the state?  
9 No.

10 Q. Is it -- it is still part of your practice to load files  
11 from the GEMS server on to a USB drive and to insert that drive  
12 into a Secretary of State public computer; correct?

13 A. That is correct.

14 Q. That computer is connected to the internet; right?

15 A. The Secretary of State's computer, yes.

16 Q. And after inserting that USB into the internet-facing  
17 computer, you will insert it back into the GEMS server; right?

18 A. Only after it is reformatted on the public computer after  
19 we have moved the file from the GEMS computer to the public  
20 computer for distribution to the county, particularly like a  
21 PDF file or reports that the county may need. After that file  
22 has been moved over to the public side, the USB drive that has  
23 been inserted into the public computer is then reformatted.

24 Q. And then reinserted back into the GEMS server?

25 A. After it is reformatted on the public, it is then at a

1 later point in time inserted back into the private system.

2 **Q.** Thank you. I would like to hand you what we'll mark as  
3 Exhibit 4 -- Exhibit 4.

4 MS. BENTROTT: And for the record, this is Senate  
5 findings -- a summary of Senate findings called Russian  
6 Targeting of Election Infrastructure During the 2016 Election,  
7 Summary of Initial Findings and Recommendations, dated May 8,  
8 2018.

9 **Q.** **(BY MS. BENTROTT)** And you can see in the section on the  
10 first page summary of initial findings the first bullet reads,  
11 at least 18 states had election systems targeted by  
12 Russian-affiliated cyber actors in some fashion.

13 Do you see that finding?

14 **A.** I do.

15 **Q.** And in the second bullet, it says almost all of the states  
16 that were targeted observed vulnerability scanning directed at  
17 their Secretary of State websites or voter registration  
18 infrastructure.

19 Do you see that finding as well?

20 **A.** I do.

21 **Q.** Neither of these findings has changed your operations in  
22 any way; correct?

23 **A.** That is correct.

24 **Q.** You testified in your deposition that you weren't aware of  
25 any current or previous lapses in security in Georgia's voting

1 system.

2 Is that still true today?

3 **A.** Yes.

4 **Q.** You testified in your deposition -- you testified in your  
5 deposition that you weren't aware of any current or previous  
6 failures in security protocol with respect to Georgia's  
7 election system.

8 Is that still true today?

9 **A.** Yes.

10 **Q.** Has anyone provided you with a copy of the deposition  
11 transcript of the state's expert witness, Dr. Shamos?

12 **A.** I have not seen that deposition, no.

13 **Q.** As you sit here, you don't have any concerns about the  
14 security of Georgia's DRE system given everything you have  
15 learned?

16 **A.** My understanding of the system in whole in relation to how  
17 we set up our operations within our -- within my office and how  
18 counties do a diligent job of executing their operations at the  
19 local level, I feel confident in Georgia's voting system, yes.

20 **Q.** For the software that is used on the Diebold -- Diebold or  
21 Diebold (different pronunciation)?

22 **A.** Diebold.

23 **Q.** -- Diebold DREs, is the license with ES&S?

24 **A.** I believe the license was procured through -- by ES&S  
25 through a divestiture of the Premier Solutions in, I believe it

1 was, 2010.

2 **Q.** For the software that is used in GEMS, is that licensed  
3 with ES&S?

4 **A.** I honestly do not know the answer to that question.  
5 Because in the divestiture, it was dealing with two separate  
6 vendors. I don't know if the license for GEMS is held by ES&S  
7 or if it is held by Dominion.

8 MS. BENTROTT: Thank you. No further questions.

9 And for the record, we would like to enter Exhibit 4  
10 into the evidence.

11 THE COURT: Any objection?

12 MR. RUSSO: No.

13 THE COURT: Exhibit 4 is admitted.

14 And my understanding was you were -- are you  
15 tendering Exhibits 1 through 3, Mr. Cross?

16 MS. BENTROTT: Yes.

17 MR. CROSS: I'm sorry, Your Honor?

18 THE COURT: Were you tendering Exhibits 1 through 3?

19 MR. CROSS: Yes. I was going to move them all in at  
20 some time.

21 THE COURT: I understood the state wanted to redact  
22 some portions. But as a whole, are 1 through 3 subject to  
23 whatever redactions necessary for the public record?

24 MR. TYSON: Yes, Your Honor. That was our concern.

25 Thank you.



1 THE COURT: The Court will retain the full record.  
2 Okay. Then 1 through 4 are admitted with that caveat.

3 CROSS-EXAMINATION

4 BY MR. BROWN:

5 **Q.** Mr. Barnes, Bruce Brown. We have met.

6 You were describing in your direct testimony the paper  
7 ballot scans going back and forth. The ballots that you  
8 currently compose at the Secretary of State's office, that is  
9 the same design that goes straight to a ballot printer;  
10 correct?

11 **A.** The images that are produced from the database for  
12 proofing purposes, those PDF files, once a county has signed  
13 off on that image, that ballot layout and ballot content, then  
14 PDF images are generated and forwarded to the county's  
15 contracted ballot printer.

16 **Q.** So if the county wanted to switch to hand paper --  
17 hand-marked paper ballots, let's say, at least for the ballot  
18 they would just simply need to increase the volume of the order  
19 with the printer? It would already be composed?

20 **A.** Well, there would be some other things besides the number  
21 of ballots that would have to be ordered by the county. There  
22 would be some structural changes that would have to be made to  
23 the underlying GEMS database in relation to how ballots are  
24 tabulated.

25 Under state statute, ballots have to be tabulated at the

1 precinct level. For advance voting, for mail-out absentee,  
2 everything has to be tabulated at the precinct level. So the  
3 system would have to be configured so that a scanner could be  
4 configured to when it receives an election day ballot if it  
5 were on paper that it routes that vote to an election day  
6 precinct for its count tabulation.

7 **Q.** And that is a reprogram that you would be capable of  
8 doing; correct?

9 **A.** That is a step within the database that we are familiar  
10 with setting, yes.

11 **Q.** Thank you. Now, I want to go back a minute to -- well,  
12 let me back up a little bit. You were describing in your  
13 direct testimony and in your deposition testimony that the  
14 Secretary of State's office does the ballot building for all  
15 the counties; correct?

16 **A.** Uh-huh (affirmative). Correct.

17 **Q.** And that there are a handful of municipalities that would  
18 contract separately to have their ballots built; is that  
19 correct?

20 **A.** Yes. There are -- excuse me. There are a handful of  
21 municipalities that own their own DRE equipment. And to  
22 execute their election, they are required to contract with the  
23 vendor for the development of the necessary database and for  
24 the production of the election media that is needed to then  
25 power those devices.

1 Q. And if you -- but to sort of cut to the chase, your office  
2 provides the programming and configuration for GEMS databases  
3 and for the ballots for a vast majority of the elections in  
4 Georgia; correct?

5 A. That is correct.

6 Q. And that would include all county elections?

7 A. That is correct.

8 Q. And all municipal elections when the municipality is  
9 having the Secretary of State either directly or through the  
10 county program and configure its database; correct?

11 A. The relationship is between the municipality and county.  
12 That is where that is governed. The Secretary of State -- we  
13 provide support for election ballot building for county  
14 elections offices. If county elections offices then contract  
15 with municipalities to execute the municipality election, then  
16 the Secretary of State's office through my division is building  
17 the database to provide to the county for that purpose.

18 Q. Are you familiar with the state's contract with -- ES&S's  
19 contract for ballot building support services?

20 A. I am.

21 Q. Mr. Barnes, what does ES&S do pursuant to that contract?

22 A. They assist my division in constructing the GEMS databases  
23 that are used within county elections.

24 Q. And so the state is outsourcing the building of the  
25 ballots; is that right?

1 **A.** We are using ES&S as a contractor to help us assist in  
2 that production.

3 **Q.** And I believe the contract for 2019 is for \$150,000; is  
4 that right?

5 **A.** I believe that is correct, yes.

6 **Q.** How many full-time people is that from ES&S that are  
7 actually working on Georgia ballots?

8 **A.** I believe ES&S has three individuals that work solely on  
9 Georgia election databases.

10 **Q.** And that would be in addition to the individuals in your  
11 office?

12 **A.** That would be in addition to the individuals in my office,  
13 yes.

14 **Q.** Okay. And so does ES&S actually sit in your office and do  
15 this ballot building work?

16 **A.** They do not.

17 **Q.** Where do they do their ballot building work?

18 **A.** They do their ballot building work within their own  
19 purviews. We provided to ES&S when this contract was initially  
20 put together specifications on how that hardware must be  
21 configured, also with a specific image of build for that  
22 specific unit that they would be using to construct those  
23 databases.

24 **Q.** So -- and where is this done? Omaha?

25 **A.** No. It is all done within the State of Georgia. It is

1 all done within -- I believe the individuals work from home.

2 **Q.** So we have individuals from an outside contractor working  
3 at home on their own PCs on Georgia's GEMS databases, which  
4 program the ballots for all of Georgia's elections; is that  
5 correct?

6 **A.** We have three individuals, two of whom were previously  
7 employees of mine at the Center for Election Systems with over  
8 a decade's experience in building GEMS databases. And then the  
9 third individual is a former county elections official from  
10 Cobb County with over 25 years of experience in Georgia  
11 elections.

12 **Q.** I understand their experience. But they are at home  
13 working on their laptop, I guess, designing --

14 **A.** It is not a laptop.

15 **Q.** Or a PC. It is a desktop; right?

16 **A.** It is a desktop, yes.

17 **Q.** They are working on a desktop. And they are designing and  
18 they are configuring the GEMS databases, which basically  
19 determine how a voter's choice at that electronic string gets  
20 transmitted into the tabulations; correct?

21 **A.** They are constructing the database, yes, sir.

22 **Q.** Okay. And do you know what sort of security they have in  
23 their homes?

24 **A.** They are under the same purviews as we are in relation to  
25 their equipment, that it must be air gapped as our equipment

1 for ballot building purposes is. And they deliver --  
2 hand-deliver those copies of databases to the Secretary of  
3 State's office for direct inspection.

4 Once those databases come into our possession, they are  
5 not then returned back to ES&S if any corrections or any issues  
6 are found within the database. All corrections to issues found  
7 are then corrected within our office, reviewed by members of my  
8 staff, and then images provided to direct counties for  
9 inspection.

10 **Q.** Do they have any particular physical security at their  
11 homes or garages where they are doing this work for the State  
12 of Georgia's voting system?

13 **A.** I don't know which -- I don't know what security  
14 parameters each individual has within their home.

15 **Q.** Okay. And do you recall the protocols that the Judge in  
16 this case approved for our experts' handling of the GEMS  
17 databases? Were you involved in that?

18 **A.** Only tangentially.

19 **Q.** Do you recall that it was in a special room at the  
20 University of Michigan with tight security and videotape? Do  
21 you recall all of those?

22 **A.** I do.

23 **Q.** Are any of those protections or security measures taken  
24 with respect to the three individuals who do not even work for  
25 the Secretary of State at their homes or garages while they are

1 working on the GEMS databases?

2 **A.** I do not know.

3 **Q.** Do you know the security checks that these three  
4 individuals have gone through -- any sort of security checks?

5 **A.** I know that previously the two employees that worked with  
6 me had gone through security checks. I'm not aware if the  
7 third individual had gone through any security checks at Cobb  
8 County. I would assume so considering what her position was.  
9 But I do not know.

10 **Q.** And can you give me those names, please?

11 **A.** The three individuals, [REDACTED], who was a former  
12 employee of mine; [REDACTED], who was a former employee of  
13 mine, and [REDACTED].

14 THE COURT: Were they employees at the state, or were  
15 they employees at Kennesaw?

16 THE WITNESS: They -- [REDACTED] and [REDACTED] were  
17 employees at Kennesaw State University.

18 THE COURT: Thank you.

19 **Q.** **(BY MR. BROWN)** Mr. Barnes, I want to ask you a couple of  
20 questions that we have gone over before with respect to the  
21 sequence of events in 2016 and 2017.

22 And do you recall that the testimony was that in August  
23 you learned of Mr. Lamb's access to the Kennesaw elections  
24 server; correct?

25 **A.** Again, I recall that he made a phone call to my boss at

1 the time, Mr. Merle King, stating that he through his wanting  
2 to assist with security efforts had gone to  
3 elections.kennesaw.edu and looked at the website and isolated  
4 areas that we may need to bring our attention to.

5 **Q.** And then in March you learned that another individual had  
6 obtained access to the same server; correct?

7 **A.** That is correct.

8 **Q.** Okay. Let me hand to you what we will mark as Exhibit 5.

9 MR. CROSS: Your Honor, while Mr. Brown does this,  
10 Dr. Halderman just raised an important point. The names that  
11 were just identified, can we redact those from the public  
12 record and you can direct people not to disclose those?  
13 Because he makes a good point. We don't want to make these  
14 people targets, given what we have heard about the level of  
15 security.

16 THE COURT: Absolutely.

17 MR. BROWN: Thank you for that.

18 THE COURT: It will be redacted, and I would direct  
19 everyone who is present here or who is listening in the  
20 overflow courtroom to delete from your notes the names of the  
21 individuals, including the reporters who are present. Thank  
22 you.

23 MR. BROWN: Thank you very much, Mr. Cross.

24 **Q. (BY MR. BROWN)** Mr. Barnes, let me show you what has been  
25 marked as Exhibit 5 -- Plaintiffs' Exhibit 5. And do you



1 recall receiving a copy of the email exchanges between  
2 Mr. Stephen Gay and Merle King and others on or about March 1,  
3 2017?

4 **A.** I do.

5 **Q.** And did you undertake at that time to determine in 2017  
6 what files would have been accessible on the Kennesaw elections  
7 server?

8 **A.** In 2017, I'm trying to recall the steps that were made  
9 immediately after that. I think the request came or the  
10 notification came in late on the day of March 1st, the original  
11 email, late in the day on March 1st. When we arrived at the  
12 office on March 2nd, then by early morning that time Stephen  
13 Gay with KSU IT was present on-site to begin a review of what  
14 may have transpired.

15 **Q.** Okay. And the email down here, if you look at the bottom  
16 email, which would be the first one -- and the Bates number at  
17 the bottom is CGG0000119.

18 THE COURT: I'm sorry. What are we looking at right  
19 now?

20 MR. BROWN: This is Exhibit 5.

21 THE COURT: All right. Go ahead.

22 **Q.** **(BY MR. BROWN)** Mr. Barnes, who is Andy Green?

23 **A.** I do not know Mr. Green.

24 **Q.** But he appears to be associated with KSU; is that right?

25 **A.** That does appear to be the case.

1 Q. Do you see where he says that his friend shared with me  
2 that the exposed directories contained, among other things,  
3 voter registration detail files, including date of birth and  
4 full Social Security numbers? Do you see that?

5 A. I do.

6 Q. And then Green says, I was able to verify its presence --  
7 the presence of the vulnerability myself. Do you see that?

8 A. I do.

9 Q. And then if you -- if you move up to the next page --

10 THE COURT: Is there a third page, or are you going  
11 back to Page 1?

12 MR. BROWN: I'm going back to Page 1. Thank you,  
13 Your Honor. Sorry.

14 Q. **(BY MR. BROWN)** It would appear that -- who is Mr. Gay?

15 A. Mr. Gay was the head of Kennesaw State University's  
16 information technology department.

17 Q. And it appears that he also confirmed the vulnerability;  
18 is that correct?

19 A. I don't know if he personally confirmed it or someone with  
20 his staff confirmed it. I'm unsure.

21 Q. But he was convinced that there was a vulnerability;  
22 correct?

23 A. He immediately reached out to Mr. King to start to try to  
24 remediate the problem.

25 Q. Okay. Now, let me hand you what has been marked as

1 Exhibit 6. What is Exhibit 6, Mr. Barnes?

2 **A.** It appears to be a write-up pulled together by my office  
3 outlining the files that we believe to have been present on  
4 elections.kennesaw.edu at the time.

5 **Q.** At the time that it had the vulnerability described by  
6 Mr. Green and Mr. Gay; correct?

7 **A.** That is correct.

8 **Q.** And the list of files that you have here that were  
9 exposed, these are illustrative; correct?

10 **A.** That is correct. This was for descriptive purposes to  
11 educate KSU IT in relation to what was present.

12 **Q.** So you use Appling because I believe that is the first  
13 county in the alphabet?

14 **A.** That is correct.

15 **Q.** And so for most of the counties, they would have some  
16 folders that were exposed even though the folders may not be  
17 populated; correct?

18 **A.** Correct. The folder was there. But there may or may not  
19 have been data within the folder.

20 **Q.** And then what is the -- if you look on the second page,  
21 what does the extension EXE mean to you on the file name?

22 **A.** Let's see. Which --

23 **Q.** Pickens County ExpressPoll ED files?

24 **A.** It is an executable file. In that particular file, the  
25 EXP report file is a report file that resides on the compact

1 flash card of the ExpressPoll that allows the local  
2 jurisdictions to produce a numbered list of voters post  
3 election.

4 **Q.** And there were executable files of the GEMS databases on  
5 here too; correct?

6 **A.** Not to my knowledge. There were not executables of GEMS.

7 **Q.** Were there demonstration databases?

8 **A.** There were, I believe, a demonstration database but not  
9 GEMS, the executable. A GEMS file.

10 **Q.** A GEMS file?

11 **A.** Uh-huh (affirmative).

12 **Q.** That could be used with a GEMS database or imported into a  
13 GEMS database?

14 **A.** A GEMS file would be read by a computer running GEMS.

15 **Q.** Read by a computer running GEMS. Thank you.

16 And then -- so I think -- and we went over this in your  
17 deposition. But the -- there was a demonstration GEMS file;  
18 correct?

19 **A.** There was. I don't remember to which county I may have  
20 posted that file. But there was.

21 **Q.** Now, let me go ahead a little bit from the 2017 time frame  
22 and move forward. Did there come a time when you got I think  
23 what is called a litigation hold letter from the Attorney  
24 General's office notifying you about the existence of lawsuits  
25 and the need for you and your office to preserve any relevant

1 evidence or something to that effect?

2 **A.** I don't know if I ever received a physical letter or a  
3 physical email from the Attorney General's office. I know that  
4 we had received phone calls from the Attorney General's office  
5 or from KSU legal office in relation to making sure we maintain  
6 our records that we had possession of.

7 **Q.** And after you received that notice, KSU wiped the server  
8 that was exposed for an uncertain number of months to the  
9 internet; correct?

10 **A.** I don't know exactly what time or what day KSU did that  
11 impact to that server. It was in their total possession at the  
12 time. We were following within my office -- the CES office at  
13 Kennesaw State following what counsel was telling us, to hold  
14 everything in our control.

15 **Q.** And your testimony is because -- wait. In your control.  
16 So you didn't have control over it even though it was an  
17 election server; is that right?

18 **A.** KSU had taken possession of that being that it was KSU  
19 hardware.

20 **Q.** Okay. And so -- and you didn't -- when you got the  
21 notification from the Attorney General that there was  
22 litigation and that you needed to preserve evidence, you didn't  
23 reach out to KSU and say, hey, wait a minute, you have got the  
24 server that's the heart of this litigation, don't do anything  
25 with that? You didn't say anything to that effect, did you?

1 **A.** I assumed that if the Attorney General's office is  
2 directly calling me they are also directly calling KSU legal  
3 counsel and providing that same information --

4 **Q.** And you --

5 **A.** -- and then further assumed that KSU legal is making sure  
6 that other departments that are affected with this process  
7 would be notified of that order.

8 **Q.** And do you know whether KSU got the memo, so-to-speak?

9 **A.** I do not know.

10 **Q.** And for all you know, the only existing source of  
11 information about what was on that server would be your memo,  
12 which is Exhibit 6, and Logan Lamb's memory, which we have in a  
13 declaration; correct?

14 **A.** Excuse me. I believe the FBI also had taken an image of  
15 that server.

16 **Q.** Right. And that is an image that they have now; correct?

17 **A.** That is my understanding, yes, sir.

18 **Q.** And that -- well, it is subject to discovery. That is not  
19 something that is your -- that is not in your bailiwick.

20 But as far as you know, there is no other copy around;  
21 correct?

22 **A.** That is correct. To my knowledge, I do not know of  
23 another copy.

24 **Q.** And then at some point, there was a second server that  
25 also was wiped; correct?

1 **A.** I believe there was a second box that KSU IT had taken  
2 possession of from the center. And then again, because it was  
3 KSU property, it was under their control and their protocols.

4 **Q.** You testified in response to the direct that there has  
5 been -- this is a different topic. I don't want to switch  
6 gears too quickly -- but that there has been no inspection of  
7 the memory cards themselves.

8 Do you recall that testimony?

9 **A.** Yes.

10 **Q.** And how many memory cards are we talking about?  
11 Thousands; right?

12 **A.** Each jurisdiction has in most cases two memory cards per  
13 voting device. They have 125 megabyte -- a 128-megabyte card  
14 and a 48- to 64-megabyte card. So there are approximately  
15 27,000 DREs. So 27,000 times 2.

16 **Q.** So over 50,000 memory cards out there that have not been  
17 wiped; is that correct?

18 **A.** They have not been wiped by the state. That doesn't mean  
19 that they haven't been wiped by a local jurisdiction.

20 **Q.** I understand. Let's go back to your USB drive that you  
21 use your ownself.

22 Do you ever attempt to verify that the USB drive has  
23 actually been formatted on another -- reformatted by inserting  
24 it into another computer?

25 **A.** Every time I work with a drive, when I'm completely

1 finished with running it, I do a formatting of the drive. And  
2 if I have any doubt of that, I format it before I use it.

3 **Q.** Do you take it to another computer to test to see whether  
4 it has actually been reformatted?

5 **A.** I've got access to multiple computers. But my normal  
6 practice is my public computer is used for reformatting. And  
7 before I insert it into my private system, if I have any  
8 question about that device, I go back to my public computer and  
9 do a reformatting.

10 **Q.** Are you aware that there is malware or if there is malware  
11 that can disguise or prevent actual reformatting of USB drives  
12 and you will never see it if you use the same computer?

13 **A.** I am not.

14 MR. BROWN: That's all I have, Your Honor.

15 DIRECT EXAMINATION

16 BY MR. RUSSO:

17 **Q.** Good morning, Mr. Barnes.

18 **A.** Good morning.

19 **Q.** With regard to county GEMS databases, can you explain to  
20 us how -- well, what happens when a county sends a GEMS  
21 database back to the Secretary of State's office?

22 **A.** As part of the certification results that the Secretary of  
23 State's office has to obtain from the county, one of those  
24 portions is a copy of the county's GEMS database containing all  
25 of the election results.



1           When that GEMS database is received, it is received by the  
2 Secretary of State and it is held by the Secretary of State.  
3 It is not loaded back into the private GEMS system. It is  
4 solely held as a record for the Secretary of State that if  
5 there is need to examine it they have the CD and can have  
6 access to the database. But it is not loaded back into the  
7 system.

8 **Q.** And if the Secretary of State's office wanted to review a  
9 county GEMS database, what would the office do?

10 **A.** We would pull an isolated GEMS computer that is not even  
11 connected to the state private system, plug it in external to  
12 any device, load the database into that system, and produce  
13 whatever report the state may need.

14 **Q.** So a county GEMS database wouldn't be uploaded into the  
15 state's GEMS database?

16 **A.** That is correct.

17 **Q.** It would be uploaded to a separate server?

18 **A.** It wouldn't be uploaded on a server at all. It would just  
19 be housed on a single device.

20 **Q.** So if there was any malicious software that was on a  
21 county GEMS server, it wouldn't ever go back into the state's  
22 GEMS database?

23 **A.** Correct.

24           MS. BENTROTT: Objection. Leading.

25           THE COURT: I'm going to allow it. But be careful.

1 **Q.** (BY MR. RUSSO) What was your role at the Center of  
2 Elections while you were at Kennesaw State?

3 **A.** My role was overseeing the daily operations and developing  
4 and building the data sets that were used by counties. I  
5 basically made sure that whatever county was needing that is  
6 what our office was producing.

7 **Q.** At the time of the alleged incident with Mr. Lamb, were  
8 you the head of Center for Election Systems at the time?

9 **A.** I was the director, but I had a boss, and he was the  
10 executive director, and that was Mr. King.

11 **Q.** And you weren't involved in any investigations of that  
12 incident while you were there?

13 MS. BENTROTT: Objection. Leading.

14 **Q.** (BY MR. RUSSO) Were you involved in any investigation  
15 while you were there?

16 **A.** I was not.

17 **Q.** And are you aware of what the state did or Secretary of  
18 State's office did when the Center of Elections was  
19 transitioned over?

20 **A.** When the Center for Elections Systems was transferred over  
21 to the Secretary of State's office, the Secretary of State's  
22 office did a complete build from ground up of a new private  
23 system, which the GEMS system would be held on. So whole new  
24 hardware, whole new operating system, whole new configuration.

25 **Q.** So you spoke earlier regarding the ballot building

1 process. Can you walk us through the ballot building process  
2 as it is today?

3 **A.** The ballot building process as it sits today, I have a  
4 staff of myself and three other employees. And when the ballot  
5 building process is occurring, counties first have to notify  
6 the state whether there is going to be an election, whether it  
7 is a municipal election this year or a special called election.  
8 And they provide information to their elections liaisons at the  
9 Secretary of State's office detailing when the election is  
10 going to be held, when qualifying for the election would be.

11 And then that information is also passed forward to the  
12 Center for Election Systems where we collect that information  
13 and create a folder containing that information in relation to  
14 the race and to the election.

15 And then depending upon the number of databases that have  
16 to be built for a specific election -- so, for example, in June  
17 elections of this past year, there were only a handful -- I  
18 think maybe 10 or 12 that have to be constructed. Due to that  
19 low volume, we were able to construct those databases locally  
20 within the Center for Election Systems. We did not have to ask  
21 ES&S to help us with those.

22 So we take the information in from the county, construct  
23 the GEMS database, pull the data into that data set that the  
24 county needs, then produce PDF reports, PDF ballot images that  
25 are then shared to the counties through upload to the Secretary

1 of State's FTP site.

2 The county has access to that data set. They review it.  
3 If they approve it, then they provide a signature that then  
4 allows us to release the database to that jurisdiction.

5 THE COURT: The database being the ballot information  
6 or the voter information or both?

7 THE WITNESS: At this point in time, there is no  
8 voter information within it. The only thing that my office is  
9 releasing is a copy of the GEMS database. And that is a --  
10 that is placed onto a CD. And the database has a password  
11 activity. But the CD itself is also password protected.

12 The CD is then distributed to the jurisdiction. Once  
13 they receive the CD, the jurisdiction has to call my office and  
14 identify themselves and also provide a code that is printed on  
15 to the CD. If we know the person calling and they provide the  
16 right code, then we will provide them the password to access  
17 the database. They then load that to their local computer and  
18 then produce the needed election media devices to power their  
19 touchscreens.

20 **Q. (BY MR. RUSSO)** Is that the same process that is used for  
21 building a ballot that would go on -- that would be used for an  
22 optical scan machine?

23 **A.** Yes. We would go through the exact same protocols, yes.

24 **Q.** Now, earlier you were asked by plaintiffs' counsel about a  
25 USB drive. Is that -- do you know -- is that USB drive a

1 locked USB drive?

2 **A.** It is a lockable USB drive, yes.

3 **Q.** And can you -- could you walk us through the process that  
4 you go through when you are taking data and putting it onto the  
5 USB drive.

6 **A.** Right. First off, start off with a drive. Verify that it  
7 has been formatted. I do that on my public-facing computer, my  
8 SOS public-facing computer. Format the drive. Once the drive  
9 has been formatted, then I remove it from the public computer  
10 and proceed to my private computer on the private GEMS system.

11 Then the data files are copied from the GEMS computer and  
12 placed onto the USB drive. The USB drive is then removed from  
13 the private drive and then placed into its locked position. It  
14 is then transferred -- pulled over to the public computer --  
15 inserted into the public computer. And then the files are  
16 copied from that drive onto the public computer for  
17 distribution to counties.

18 Once that process is completed, then we unlock the drive  
19 and then format the drive.

20 **Q.** Now, when the drive is inserted into the internet-facing  
21 computer, is it -- do you know if it is scanned for malware at  
22 that point?

23 **A.** It is my understanding that the Secretary of State's  
24 office has a protocol in place that for any drive that is  
25 inserted it is immediately scanned.

1 MS. BENTROTT: Objection. Lacks foundation.

2 THE COURT: Is it an understanding based on -- do you  
3 have personal knowledge, or has somebody else told you that?

4 THE WITNESS: My Secretary of State's IT office has  
5 told us that every drive that is placed in whether it is --

6 THE COURT: All right. But that is based on some  
7 information they provided to you?

8 THE WITNESS: Yes.

9 THE COURT: You haven't been present? You haven't  
10 observed that yourself?

11 THE WITNESS: When I insert a USB drive, there is  
12 always something that pops up that gives us indication that  
13 something has taken place with that drive.

14 THE COURT: All right. So that is the basis of your  
15 knowledge?

16 THE WITNESS: Yes.

17 THE COURT: You don't have any personal knowledge  
18 from having participated in this over at the Secretary of  
19 State's office?

20 THE WITNESS: Correct.

21 THE COURT: All right.

22 **Q. (BY MR. RUSSO)** Do you know if there are any other  
23 restrictions that are in place on the Secretary of State's  
24 network for pulling -- when you want to pull data onto that USB  
25 drive?

1 **A.** Again, my understanding of what we have been educated by  
2 our IT office is that any time that a file is generated and  
3 generated by, say, for example, eNet -- when we have to pull  
4 data files from eNet for ExpressPoll purposes, that when that  
5 data file is built it is scanned for malware. And then when it  
6 is transitioned to a jump drive, it is then encrypted  
7 information. Because all data that comes off of the SOS public  
8 computers, that data must be encrypted in order to be moved.

9 MS. BENTROTT: Same objection, Your Honor. Lacks  
10 foundation.

11 THE COURT: All right. I'm going to strike that  
12 unless you can create a foundation.

13 **Q. (BY MR. RUSSO)** Is there anything that you need to click  
14 on your computer screen to --

15 MS. BENTROTT: Objection. Leading the witness.

16 THE COURT: All right. I just need him to explain  
17 what he -- the basis of his testimony.

18 MR. RUSSO: That is what I'm trying to ask him.

19 THE COURT: Just don't lead.

20 **Q. (BY MR. RUSSO)** Whenever he is trying to transfer files  
21 over, do you click on anything that indicates it has been  
22 encrypted?

23 MS. BENTROTT: Objection. Leading.

24 MR. RUSSO: Well, I'm asking him.

25 THE COURT: We're going through a lot of leading

1 questions. Just simply: What is the basis of your testimony  
2 as to the eNet data?

3 THE WITNESS: When I have copied data from my public  
4 computer onto a jump drive, if I take that jump drive over to  
5 my private computer, in order to -- in order for the data to be  
6 read by my private computer, I first have to put in a password  
7 on my jump drive that allows access to the data.

8 THE COURT: All right. So you understand that  
9 that -- that is the system at least relative to your experience  
10 of it?

11 THE WITNESS: If I -- I first have to put a password  
12 in to access the drive. Once I have accessed the drive, I  
13 actually have to launch an executable within the folder. If I  
14 don't launch the executable within the drive folder, if I just  
15 move the file over, just literally drag it, it is unreadable.

16 So that is my understanding of it being encrypted.  
17 That I actually have to run a process to launch the decryption.

18 THE COURT: Do you know that that is the process for  
19 anyone else or not?

20 THE WITNESS: That is the process for all SOS  
21 employees when moving data from the public computer to any  
22 other computer.

23 THE COURT: Okay. Does this -- are these eNet files  
24 also sent to county personnel?

25 THE WITNESS: County election officials have access



1 to eNet. But the data files that I'm speaking of are the data  
2 files that are used to produce the electors' list that is seen  
3 on ExpressPoll within the polling location.

4 THE COURT: Go ahead.

5 **Q. (BY MR. RUSSO)** Mr. Barnes, are you familiar with the  
6 state's contract with ES&S for ballot building?

7 **A.** I am.

8 **Q.** And do you know if that contract has any security measures  
9 in it to ensure that the ballot building process follows the  
10 state's current procedures?

11 **A.** I believe it does.

12 MR. RUSSO: No further questions, Your Honor.

13 THE COURT: Have you reviewed the contract?

14 THE WITNESS: Yes, ma'am. I believe it is about four  
15 or five pages in length with a very detailed section in  
16 relation to what security requirements they are to uphold.

17 MR. RUSSO: Thank you.

18 THE COURT: Could I just ask a few questions that are  
19 follow-up. And, again, they don't count against anyone. And  
20 take a minute for my questioning as it is off beforehand.

21 EXAMINATION

22 BY THE COURT:

23 **Q.** Do you have any familiarity with the contract between the  
24 Georgia Secretary of State's office and PCC?

25 **A.** No, ma'am, I do not.

1 Q. And are you involved in the voter registration database at  
2 all?

3 A. I have access to the voter registration database in order  
4 to obtain files to build the electronic data set for  
5 ExpressPoll, but I do not work in the voter registration  
6 division.

7 Q. All right. But the data from the -- that is being  
8 manipulated or in the past was manipulated on the software and  
9 operations of PCC, would that be transferable then to the  
10 Secretary of State's office?

11 A. I do not know.

12 THE COURT: All right. Thank you very much.

13 MS. BURWELL: No questions, Your Honor.

14 MS. BENTROTT: Some redirect, Your Honor.

15 THE COURT: All right.

16 RE-CROSS-EXAMINATION

17 BY MS. BENTROTT:

18 Q. Thank you, Mr. Barnes. When you plug the USB drive into  
19 your public-facing computer to reformat it, you have to unlock  
20 the USB drive; correct?

21 A. After I have placed the locked drive into the computer to  
22 move -- copy the files over, I then remove the unlocked  
23 drive -- I remove the locked drive, switch it to unlocked,  
24 reinsert the drive back into the public computer, and then do  
25 my formatting.

1 Q. And that is true for the USB drive that you plug into the  
2 GEMS servers; correct?

3 A. That is the -- yes. It is formatted on the public side  
4 before it is placed back into the private side.

5 MS. BENTROTT: Thank you. Nothing further.

6 THE COURT: May this witness step down?

7 MR. BROWN: No further questions, Your Honor.

8 THE COURT: Thank you very much.

9 I just want to get back again to the contract between  
10 the Secretary of State's office and the PCC. I don't know  
11 whether the contract that just renewed is the same contract  
12 other than date frame as the one that was reviewed in the cyber  
13 risk assessment of 2018. But if it is the same other than the  
14 time frame, I don't need to see the one that was looked at in  
15 2018. But if it is a different one, I'll need both.

16 MR. TYSON: Okay. And, Your Honor, on that point, in  
17 communicating with the Secretary of State's office, there are  
18 some changes regarding the hosting obligation. So it will be  
19 different. But the belief is that the auditing functions were  
20 included. So we're going to go ahead and get that for you.

21 THE COURT: Okay. Thank you very much.

22 MR. BROWN: Your Honor, Bruce Brown. We were going  
23 to -- I was going to reference this in my opening. But this  
24 relates to the testimony of Mr. Barnes. With your permission,  
25 we're going to serve and file a hearing brief on evidentiary

1 presumption arising from spoliation of evidence just for -- for  
2 review in light of the testimony of Mr. Barnes and everything  
3 else that is in the record on that particular issue.

4 THE COURT: All right.

5 MR. BROWN: Thank you, Your Honor. Then we have --  
6 I'm not sure what time it is. We have one short witness that  
7 we can get up and down before 1:00. They will be very short if  
8 that is all right.

9 THE COURT: Okay. Let's get the witness in.

10 MR. BROWN: The plaintiffs would call Jasmine  
11 Clark -- I'm sorry. Teri Adams.

12 THE COURT: Is Teri Adams fast also?

13 MR. BROWN: We have several fast ones. The  
14 plaintiffs would call Teri Adams, Your Honor.

15 THE COURT: Would you announce your presence. I  
16 think we didn't have it.

17 MR. BRODY: Good morning, Your Honor. David Brody  
18 from the Lawyers' Committee for Civil Rights on behalf of  
19 Coalition plaintiffs.

20 COURTROOM DEPUTY CLERK: Please raise your right  
21 hand.

22 **(Witness sworn)**

23 COURTROOM DEPUTY CLERK: Please have a seat. Loudly  
24 and clearly state your name, and spell your last name for the  
25 record, please.

1 THE WITNESS: Teri Adams.

2 COURTROOM DEPUTY CLERK: In the mic, please.

3 THE WITNESS: I'm Teri Adams.

4 Whereupon,

5 TERI ADAMS,

6 after having been first duly sworn, testified as follows:

7 DIRECT EXAMINATION

8 BY MR. BRODY:

9 Q. Good morning, Ms. Adams. Are you registered to vote in  
10 Georgia?

11 A. Yes.

12 Q. Did you vote in the November 2018 federal election?

13 A. Yes.

14 Q. When did you vote?

15 A. November 2018 election I voted early in October.

16 Q. Where did you vote?

17 A. At the Bleckley County Courthouse.

18 Q. When you voted, did you use an electronic voting machine  
19 or paper ballots?

20 A. It was an electronic voting machine.

21 Q. Did you experience any problems voting?

22 A. Yes.

23 Q. Could you please describe those.

24 A. I went and voted -- it is a small town -- to courthouse  
25 early vote and cast my ballot. When you get to the end, it

1 asks you to verify. And so I always verify because I'm a  
2 retired teacher so I'm going to verify. And it had changed one  
3 of my votes.

4 **Q.** Which vote did it change?

5 **A.** It changed my vote for Stacey Abrams to Kemp.

6 **Q.** And what did you do?

7 **A.** I thought, well, I made the mistake, so I went back, and I  
8 changed it again. And I went to verify again, and it had  
9 changed back.

10 **Q.** What did you do after that?

11 **A.** I changed it again. And I verified then, and it stayed  
12 that time.

13 **Q.** And so when you went back to change it the third time, did  
14 you do anything different from when you voted -- when you  
15 selected the first two times?

16 **A.** No. No.

17 **Q.** So you did the exact same thing?

18 **A.** Yes.

19 **Q.** Do you know whether your vote was ultimately counted  
20 correctly?

21 **A.** I have no way of knowing. I don't know.

22 **Q.** Did you tell anyone at the polling station about your  
23 problem?

24 **A.** Not that day because I was in a hurry going to the  
25 supermarket and doing stuff. I thought, well, it was my

1 mistake. But then over the weekend, I started seeing news  
2 stories about people having problems. I was like, wait a  
3 second, I did. So I went back to the courthouse, and I told  
4 the two ladies who were there that day that I voted the  
5 problems I had experienced. And she said, well, did it take  
6 your vote? I said yes, after the third time. And she said,  
7 well, it took your vote then; right? I said, yeah, after the  
8 third time. She said, well, you're fine then. Okay.

9 **Q.** But you don't know necessarily if it was correctly  
10 counted?

11 **A.** I have no idea.

12 MR. BRODY: Thank you.

13 MR. CROSS: No questions, Your Honor.

14 THE COURT: What county was this again?

15 THE WITNESS: Pardon me?

16 THE COURT: What county was this?

17 THE WITNESS: Bleckley.

18 **(There was a brief pause in the proceedings.)**

19 CROSS-EXAMINATION

20 BY MR. LAKE:

21 **Q.** I will be brief. Brian Lake on behalf of the state  
22 defendants. I just have a few follow-up questions.

23 At the time you say that you had selected Ms. Abrams and  
24 on the review screen it had changed to Kemp, when you initially  
25 selected Ms. Abrams on that screen, did it show Ms. Abrams had

1 been selected?

2 **A.** After I went to verify, no.

3 **Q.** Maybe I'm not asking this the right way. When you made  
4 your initial selection --

5 THE COURT: Watch out in terms of the feedback.  
6 Just -- it is on a strong volume so that anyone in the overflow  
7 room can also hear.

8 MR. LAKE: Understood.

9 **Q.** **(BY MR. LAKE)** When you selected Ms. Abrams on the initial  
10 screen, did you see that it registered Ms. Abrams on that  
11 screen?

12 **A.** Yes.

13 **Q.** And it was only upon the review screen that you saw that  
14 it was --

15 **A.** Yes.

16 **Q.** -- Kemp? And on the third attempt as you say when you  
17 selected Ms. Abrams, it did register on the review screen?

18 **A.** On the third, yes.

19 **Q.** Okay. Just so I'm clear on afterwards, you say you  
20 didn't -- you didn't mention it to the poll workers at the  
21 time --

22 **A.** No.

23 **Q.** -- of the incident? The two ladies you spoke to later on  
24 at the courthouse, are those -- who were those ladies?

25 **A.** The same ladies -- I don't know one of them's name. But



1 the other one I have known for years. Her last name is Witte.

2 I have known them both for years. I have seen them up there.

3 **Q.** Were those ladies poll workers on the day in question?

4 **A.** Yes.

5 **Q.** Okay. And after that -- after you spoke to those poll  
6 workers, did you talk to anyone else about the incident?

7 **A.** Not for about a week I guess. And then I saw a number for  
8 people to call to vote -- to report voter irregularities. And  
9 I called the number.

10 **Q.** What number was that?

11 **A.** I don't remember the phone number.

12 **Q.** Do you know if that number was to the Secretary of State's  
13 office?

14 **A.** No, I don't.

15 **Q.** And in terms of providing your declaration in this case --  
16 maybe I should ask. Did you provide a declaration?

17 **A.** Yes.

18 **Q.** Were you contacted to provide that declaration, or did you  
19 reach out to someone else to provide it?

20 **A.** I made the initial phone call. And awhile later, someone  
21 called me --

22 **Q.** Okay.

23 **A.** -- and asked me if I could give a declaration that could  
24 be notarized.

25 **Q.** Okay. So the declaration that you were asked to execute

1 in this case or to execute was a follow-up of the initial call  
2 that you had made?

3 **A.** Yes.

4 MR. LAKE: Okay. I believe that is all I have, Your  
5 Honor.

6 THE COURT: Thank you.

7 MR. BRODY: Nothing further.

8 THE COURT: You can step down.

9 All right. I think this is a good time to take a  
10 break. I'm going to just keep on running pretty tight here.  
11 So we're going to take a -- be back at 25 after 1:00. Yes.

12 MR. ICHTER: Your Honor, Cary Ichter for the  
13 individual Coalition plaintiffs. And since it appears as  
14 though they are ably represented here, I was wondering if I  
15 could be excused.

16 THE COURT: Yes, you can be.

17 All right. I did want to say one thing. I don't  
18 know how many people are in the overflow courtroom. Even  
19 though it is not very comfortable to be in the corners on the  
20 far over here, I do think that if you-all are able to move some  
21 it would be -- if there is any more room on your row it would  
22 be courteous -- some of you may be just leaving, and that will  
23 take care of things. But I hate to have people come to the  
24 courthouse and not be able to have some -- be able to sit in  
25 the courtroom at all.

1 All right. So we'll see you in one half hour at 25  
2 after 1:00.

3 COURTROOM SECURITY OFFICER: All rise.

4 **(A lunch break was taken.)**

5 THE COURT: Have a seat. Sorry to do this. But I  
6 would -- when I took the break, I realized I wasn't 100 percent  
7 sure I understood precisely what Mr. Barnes said about the  
8 process on using the drive and the use of the contractors. And  
9 I wondered -- I would just like him to come back to speak to me  
10 for a few minutes. So if Mr. Barnes would be recalled if he is  
11 still here.

12 MR. RUSSO: He has left already. But we'll call him.  
13 He is down the road.

14 THE COURT: Okay. We could start with -- so he has  
15 left the courthouse?

16 MR. RUSSO: Yes. We told him --

17 THE COURT: He was free until I -- all right. Very  
18 good. I thought he was your representative, so he was going to  
19 be here.

20 MR. RUSSO: They are trying to get some things done.

21 THE COURT: That's fine. If he could just come back  
22 sometime this afternoon.

23 Who is the next witness?

24 MR. BROWN: Your Honor, the plaintiffs would call  
25 Amber McReynolds.

1 THE COURT: I would like to make sure that he  
2 testifies before Mr. Halderman so I don't end up having a  
3 misconnect here.

4 MR. CROSS: The pace at which we're going, it may be  
5 that Dr. Halderman is tomorrow.

6 THE COURT: All right. I do want to warn you that  
7 I'm going to keep on running. I'm going to run late. I'm not  
8 going to stop at 5:00.

9 MR. CROSS: Thank you, Your Honor.

10 COURTROOM DEPUTY CLERK: Please raise your right  
11 hand.

12 (Witness sworn)

13 COURTROOM DEPUTY CLERK: Please have a seat. Loudly  
14 and clearly state your name, and spell your last name for the  
15 record.

16 THE WITNESS: Amber McReynolds, and it is  
17 M-C-R-E-Y-N-O-L-D-S.

18 Whereupon,

19 AMBER MCREYNOLDS,

20 after having been first duly sworn, testified as follows:

21 DIRECT EXAMINATION

22 BY MR. BROWN:

23 Q. Ms. McReynolds, good afternoon. My name is Bruce Brown,  
24 and I represent the Coalition plaintiffs in this case.

25 What is your current title and position?

1 **A.** Currently, I'm the executive director of the National Vote  
2 at Home Institute.

3 **Q.** Where do you live and work?

4 **A.** I live in Denver, Colorado. The National Vote at Home  
5 Institute is a national organization, but I live and operate  
6 from there and travel around the country.

7 **Q.** And you have submitted declarations in this case; is that  
8 correct?

9 **A.** Yes. Last year and this year.

10 **Q.** I want to review your background and experience briefly.  
11 But since you've set most of this out in your declarations,  
12 I'll skip over many of them.

13 THE COURT: I'm happy to reference anything you tell  
14 me as to this individual.

15 MR. BROWN: Thank you, Your Honor. Document 277,  
16 Page 93, lists her qualifications and her background, which  
17 includes master's at London School of Economics, honors for her  
18 work in Colorado, her participation in the MIT election and  
19 data science lab, and other things that qualify her.

20 **Q.** **(BY MR. BROWN)** Has Denver received awards for elections  
21 covering the work that you have done in Colorado?

22 **A.** Yeah. Formerly, I was the director of elections for the  
23 city and county of Denver. So I administered elections in  
24 Denver, Colorado, for over 13 years, serving as director for  
25 seven years.

1           And in that time, we went from an organization that,  
2 frankly, wasn't so good at running elections to one that is now  
3 nationally and internationally recognized as one of the best  
4 election offices in the country.

5 **Q.** Do you have experience in transitioning an election system  
6 from a primarily DRE system to a primarily hand-marked paper  
7 ballot system?

8 **A.** Yes. That was one of the first large transitions that I  
9 oversaw during my time in Denver.

10 **Q.** And when was that?

11 **A.** So that was back from basically the period of 2005 to  
12 2007. In that time period, we also transitioned from a legacy  
13 county-based voter registration system to a statewide voter  
14 registration system in Colorado.

15 **Q.** And was the brand of the DRE that was involved in Colorado  
16 the same as the brand that is involved here?

17 **A.** No.

18 **Q.** From your perspective as an elections administrator and  
19 the work that you do, are the same issues in terms of  
20 feasibility presented in Georgia with respect to the Diebold  
21 DREs as you faced in Colorado?

22 **A.** Yeah. And I should clarify. The Diebold -- the similar  
23 system that is in Georgia was used in other counties. In  
24 Denver we had a Sequoia system. So the vendors were different  
25 than what is in Georgia.

1 But the feasibility in terms of the hardware equipment  
2 systems and sort of transitioning to a new system are similar  
3 complexities to what exists anywhere really in the country.

4 **Q.** And do you have a background in conducting or setting up  
5 processes for audits?

6 **A.** Yes. So Colorado was a random audit state up until 2017.  
7 And the law election reform package of reforms that we passed  
8 in the legislature in 2013 included risk-limiting audits  
9 statewide.

10 So once we addressed -- and this, again, is a sequencing  
11 thing. But usually you have to address the policy flaws within  
12 your legal structure for elections, then design voter-centered  
13 processes, and then design effective technology.

14 So Colorado is where they are today because we sequenced  
15 those reforms over a long period of time culminating with  
16 implementation of a statewide risk-limiting audit, which is now  
17 basically the gold standard, maybe even platinum standard, if  
18 you will, with regards to election auditing.

19 **Q.** Have you had experience dealing with electronic pollbooks  
20 in Colorado?

21 **A.** Yes. Denver actually utilized an e-pollbook provided by a  
22 vendor in 2006, which created significant technical failures.  
23 And as a result of that, we made a determination to not use an  
24 outside vendor for that product in the future. And instead we  
25 went back to paper pollbooks for a period of time. Then once

1 the statewide voter registration system was designed and built,  
2 now Colorado actually uses a voter check-in process that is  
3 connected -- it is like a front end to the statewide voter  
4 registration system. So we don't have a need to use an outside  
5 vendor for any pollbook.

6 And I usually advise jurisdictions and states wherever I  
7 go to that there is not a necessary -- you don't really need to  
8 have a vendor provide an e-pollbook solution if you have your  
9 statewide database designed correctly.

10 MR. BROWN: Your Honor, I would tender Ms. McReynolds  
11 as an expert in the area of elections to testify on the  
12 feasibility of Georgia transitioning from DREs to hand-marked  
13 paper ballots, on audits of hand-marked paper ballots, and on  
14 electronic pollbooks.

15 MR. BELINFANTE: Your Honor, we would object to that  
16 designation. She has not testified thus far that she has any  
17 knowledge of Georgia law, of Georgia elections, of Georgia  
18 counties or the cities, et cetera. I can get into more of it.  
19 Or if the Court would like, I can ask some questions on voir  
20 dire.

21 THE COURT: You can go ahead and ask on voir dire.

22 VOIR DIRE EXAMINATION

23 BY MR. BELINFANTE:

24 Q. Ms. McReynolds, my name is Josh Belinfante. I represent  
25 the state. Good afternoon to you.



1 **A.** Hi.

2 **Q.** Your experience in elections in terms of serving as an  
3 administrator is limited to Colorado; isn't that correct?

4 **A.** That is correct.

5 **Q.** And in preparation for your testimony today -- or let me  
6 back up a second.

7 You do not have a law degree; is that right?

8 **A.** Correct.

9 **Q.** And in preparation for your testimony today or in  
10 preparation for your declarations, did you review any county's  
11 budget in the State of Georgia?

12 **A.** County budget, no.

13 **Q.** Did you review any city's budget in the State of Georgia?

14 **A.** No.

15 **Q.** Did you review any Georgia laws regarding elections in the  
16 State of Georgia?

17 **A.** Yes.

18 **Q.** And who provided you with those laws?

19 **A.** So I reviewed some of Georgia's laws actually in this past  
20 legislative cycle when I flew down to Atlanta and worked with  
21 some lobbyists that we had hired from my organization to make  
22 suggestions regarding the election omnibus bill. And I also  
23 met with the Secretary of State staff while I was in town.

24 **Q.** And that was House Bill 316, the omnibus bill?

25 **A.** Yes.

1 Q. In terms of -- have you -- in terms of -- are you offering  
2 any kind of methodology today to your opinion that it is  
3 feasible to transition, or is it simply based on your  
4 experience in -- your administrative experience as an election  
5 official?

6 A. Can you restate that question?

7 Q. Sure. Is there any formula that you use to determine  
8 feasibility, or is it just based on your general experience as  
9 an election administrator?

10 A. It is based on my extensive experience as an election  
11 administrator overseeing various transitions of not only voter  
12 registration systems but also various voting models, methods,  
13 and system changes.

14 Q. And, again, that is all limited to Colorado?

15 A. It is in Colorado and the largest jurisdiction in  
16 Colorado.

17 MR. BELINFANTE: Your Honor, we would move that she  
18 is not an expert under Rule 702. She is not -- has not proven  
19 or established any level of knowledge about city or county  
20 budgets, which certainly goes into a question of feasibility.  
21 She has not indicated -- she is not trained as a lawyer.

22 She has not looked at -- while she may know about  
23 House Bill 316, for the most part this election and for the  
24 questions decided here are going to be under existing law,  
25 which she has not looked at, does not have training under.

1           And as far as reliability, she has not offered any  
2 kind of methodology to determine what constitutes feasibility.  
3 And so we think that under both the competency aspect and the  
4 reliability aspect she should not be a qualified expert for  
5 purposes of offering an opinion on feasibility of Georgia  
6 jurisdictions making transitions.

7           MR. BROWN: Your Honor, as you know, under Eleventh  
8 Circuit law, experts may be qualified in various ways. While  
9 scientific training or education may provide possible means to  
10 qualify, experience in a field may offer another pass to expert  
11 status. That is the *Frazier* case.

12           Ms. McReynolds --

13           THE COURT: All right. In order to facilitate and  
14 expedite this matter, I think I can reserve the question of  
15 whether I'm going -- she is testifying as an expert. An  
16 individual also under the rules is allowed to testify based on  
17 his or her experience. And I don't know what her opinions will  
18 be.

19           And no matter what, it is going to be to some extent  
20 limited based on her experience. If she starts opining about  
21 Georgia law, that is something different. So, you know, I am  
22 reserving ruling on whether it is an -- whether she's  
23 testifying as an expert or not. But she still can basically  
24 make a statement as to her experience and -- and if we get into  
25 an area that ends up being expert in nature, I can always

1 strike it. You have properly preserved it.

2 MR. BELINFANTE: Judge, would you like me to continue  
3 to object if we view that it is getting into expert, or do you  
4 want us to --

5 THE COURT: You can basically at the conclusion note  
6 all of the areas that you think are -- so we don't interrupt  
7 the flow -- all the areas that you think are problematic.

8 MR. BELINFANTE: Thank you, Judge.

9 DIRECT EXAMINATION (Continued)

10 BY MR. BROWN:

11 **Q.** Ms. McReynolds, based on your experience in Denver, what  
12 are the -- what is the value in terms of reliability and  
13 election integrity of hand-marked paper ballots over DREs?

14 **A.** So in my experience -- and when I first got to Denver, it  
15 was a primarily DRE-based system with a limited number of  
16 voters choosing to vote by mail. And we -- and I'll go back  
17 all the way to HAVA. You know --

18 THE COURT: H-A-V-A?

19 THE WITNESS: HAVA, the Help America Vote Act.

20 **A.** Right after Florida and the butterfly ballot situation,  
21 Congress allocated a lot of money very quickly. And that money  
22 went to basically produce voting systems that were not  
23 auditable or don't have paper audit trails simply to basically  
24 react to the butterfly ballot problem.

25 The problem with how all of that happened was the vendors

1 were basically forced to design technology and systems very  
2 quickly that weren't based on the usability guidelines and  
3 standards that should have been applied for ADA accessibility.  
4 But also because they did it so quickly, there was no thought  
5 put into voter-centric processes and making sure that the  
6 transaction for the voter was going to work.

7         So in Denver we had some DREs that did not have a paper  
8 audit trail. We needed to have a paper audit trail after HAVA.  
9 And we made the determination that the hardware that was  
10 available to us and that was on the market was not sufficient  
11 to make a significant investment in it.

12         So we limited the purchase to basically comply with HAVA  
13 and only have one or two machines at each polling location  
14 until in the future better systems would be presented for  
15 purchase. So we strategically made that decision.

16         We also analyzed what voters wanted. So we did surveying  
17 of voters, all of that, and we saw that a lot of voters wanted  
18 to get their ballot mailed to them at home. And so that is  
19 when we made the determination to then offer basically paper or  
20 plastic at the polling places. You could vote on a machine, or  
21 you could get a paper ballot obviously supplementing early  
22 voting with both of those options and then mail ballots that  
23 are all paper.

24 **Q. (BY MR. BROWN)** Do you have experience in Denver, in  
25 Colorado, with a jurisdiction that transitioned from DREs to

1 hand-marked paper ballots but used the existing legacy election  
2 management software?

3 **A.** So that is what we did in Denver. We went away from that  
4 primarily DRE full-faced ballot with no paper audit trail to  
5 the small usage of the Edge machines. They are Sequoia Edge  
6 machines with a paper audit trail. Then we offered basically  
7 you could either use the machine or you could vote on a  
8 hand-marked paper ballot. And the majority of voters chose  
9 hand-marked paper ballots.

10 **Q.** If you have an election system that uses, say, an AccuVote  
11 scanner or, I think, Samsung scanner -- one of those brands;  
12 right? -- and uses hand-marked paper ballots, if you have  
13 hand-marked paper ballots, does that mean you don't need to  
14 worry about security?

15 **A.** No, not at all.

16 **Q.** What do you do to address that?

17 **A.** So in any -- in any voting system, whether it is paper  
18 ballots or it is a ballot-marking device with a paper ballot  
19 produced audits, audits matter. Audits are there to confirm  
20 that the equipment was operating the way it should, whether it  
21 is a DRE or a central count scanner or precinct scanner.

22 But the goal of the audit is to make sure that the  
23 equipment and the systems are acting as they did when you first  
24 tested them to begin with and throughout. Then at the end of  
25 the election, validating the result and that voters can trust

1 the result and that all those watching the election and  
2 candidates involved can trust the outcome and the result.

3 The audit post election matters, whether it is a mail  
4 ballot that is a hand-marked paper ballot, it is an early  
5 voters ballot, a polling place, or election day ballot. Any  
6 ballot that is involved in the election must and should be  
7 audited to be a part of that confirmation that the election  
8 outcome can be trusted.

9 **Q.** In terms of the feasibility of a transition from the DREs  
10 to hand-marked paper ballots, is it easier if the jurisdiction  
11 is already using paper ballots, say, for absentee ballots and  
12 provisional ballots?

13 **A.** Certainly. So when I first arrived in Denver, we  
14 basically had three different elections happening  
15 simultaneously. So we had our mail ballots and sort of that  
16 process. We had early voting that was paper ballot or DRE.  
17 Then we had polling places paper ballot or DRE.

18 And there is a lot of logistical and operational  
19 considerations with running all of those different types of  
20 elections. So as we transitioned, we wanted to continue to  
21 offer voters the option of a hand-marked paper ballot, whether  
22 they were in person early voting or in person election day, as  
23 well as the opportunity to vote on an electronic device with  
24 accessible features if they wanted to do that.

25 So our whole goal was to provide choice to voters. But

1 what I would say is when you are already doing mail ballots and  
2 you are already having to process and centrally count those,  
3 which is exactly what we experienced in Denver, and then you  
4 continue to see more and more voters requesting those, the  
5 transition to paper ballots becomes much easier, frankly,  
6 because we looked at that and said, well, we're already  
7 processing more than a third of our voters in this way in a  
8 central count environment. It isn't that much more to add  
9 basically the paper coming from all of the polling locations  
10 and the vote centers to that central environment, process all  
11 of the ballots, and tabulate them that way. And by the way, it  
12 also reduces and mitigates risk associated with counting and  
13 tabulation equipment being scattered about at all the polling  
14 places.

15 **Q.** In terms of where the scanning takes place, some  
16 jurisdictions prefer precinct scanning and your preference, I  
17 take it, is central scanning; is that right?

18 **A.** Yeah. And before we transitioned to the system that is  
19 now in use statewide in Colorado, there were some jurisdictions  
20 that used precinct scanners. But most used central count  
21 environment.

22 And primarily that was because there was significant  
23 efficiencies. We were already doing a process for mail  
24 ballots. And so it made a lot more sense to do that. And then  
25 from a security perspective, in Colorado, there are 64 counting



1 locations in state right now. And every one of those counting  
2 locations has 24 by 7 surveillance cameras on all of that  
3 tabulation and how that works over a significant period of time  
4 before the election, once the database is programmed, and then  
5 a significant period of time after once the election is  
6 actually certified. So we don't have now risk at all of the  
7 polling places and precincts. We don't have, you know, ballots  
8 or tabulation equipment or any of that sitting out in the  
9 field. And that also has enabled us to save a significant  
10 amount of money on capital equipment purchases.

11 **Q.** The numbers radically decreased the number of scanners?

12 **A.** Radically.

13 THE COURT: The scanners are in the county office or  
14 in the state -- Secretary of State's office for the scanning  
15 and tabulation?

16 THE WITNESS: The scanners are in each county. So  
17 every county main office has all of the tabulation scanners and  
18 equipment. And the system -- also we don't use polling places  
19 any more. We use vote centers.

20 And this system when we went to a new -- to purchase  
21 a new voting system, it cost us about a tenth of what it would  
22 have if we would have had to outfit all of the polling places  
23 that existed. So this centralized environment not only  
24 mitigates risk, but it saves quite a bit of money on extra  
25 equipment.

1 **Q.** (BY MR. BROWN) The relief that the Coalition plaintiffs  
2 are seeking in this case, just so you know -- and I'll  
3 stipulate to this -- gives the -- does not require a county to  
4 have central count but would allow central count or  
5 precinct-based scanning.

6 Do you understand that?

7 **A.** Yeah. There's advantages and disadvantages to both  
8 certainly.

9 **Q.** One is cost obviously?

10 **A.** Yes.

11 **Q.** Another is control -- central control, if you have it at  
12 the county?

13 THE COURT: Don't testify.

14 MR. BROWN: Sorry. Thank you, Your Honor.

15 **Q.** (BY MR. BROWN) I want to shift gears a little bit quickly  
16 to e-pollbooks. And describe to the Court the importance from  
17 your perspective of maintaining accurate information for the  
18 e-pollbooks to the election process.

19 MR. BELINFANTE: Objection, Your Honor. The witness  
20 in the notice of her testimony, which is in the docket at 505,  
21 has indicated she's going to be an expert or testify about the  
22 feasibility of the proposed solution.

23 Getting into technical aspects of e-polling while  
24 perhaps in her declaration is not one of the things that she's  
25 identified as going to be talking about. It is more as it says

1 expert on feasibility of proposed solution.

2 MR. BROWN: Your Honor, I don't think the defendants  
3 even gave a description of their witnesses' testimony at all.  
4 We described it very briefly. It was in a little table. So  
5 you fit it into the table.

6 THE COURT: Well, I'll allow it on a limited basis.  
7 I can always not consider it. But I'm not sure if that is --  
8 are you saying that this is something she has an experience  
9 with or an expertise in?

10 MR. BROWN: She has -- she has both, Your Honor.

11 THE COURT: Why don't you try to focus on her  
12 experience because it is just easier.

13 MR. BROWN: Sure.

14 **Q. (BY MR. BROWN)** Based upon your experience, are there  
15 situations in which a problem with e-pollbooks can be just as  
16 bad as a problem with the DREs in terms of getting voters into  
17 voting places and getting them out and having them vote  
18 correctly?

19 **A.** In my experience, it can be much worse.

20 **Q.** And why is that?

21 **A.** So if you are solely reliant on a check-in process that  
22 relies solely on an e-pollbook without a paper backup system or  
23 some other way to process voters or if you have any sort of  
24 data integrity issues or connectivity issues or any of that in  
25 any e-pollbook, you can't check voters in.

1           So you could have all the DREs or all the paper ballots in  
2 the world ready to go for voters. But if you can't process  
3 voters into the check-in process, you are going to have five-  
4 and six-hour lines.

5           Similarly, if you have issues with the DRE stations or if  
6 the ballot is long and it takes -- sometimes a voter that might  
7 be using the sip and puff or the audio on a DRE, they may take  
8 more than an hour to vote a ballot. And those kind of things  
9 are difficult to plan for logistically because you don't often  
10 know what a voter may be utilizing there.

11           So in my experience, e-pollbook issues can be much worse  
12 than issues on a DRE.

13 **Q.** How does having a paper backup at the polling location  
14 help that problem?

15 **A.** So if you do have a paper backup -- and this is something  
16 that we instituted when we went to vote centers. We had a full  
17 paper backup of the entire voter database at each vote center  
18 location in Denver. And so if the pollbook is experiencing  
19 problems or slowness or any of that, the election judges are  
20 instructed to pull out those paper pollbooks. And then they  
21 can at least continue to process voters knowing what correct  
22 ballot style to give them.

23           Any voters that could access same-day registration or  
24 don't match what is in the pollbook would be diverted to a  
25 provisional. But it enables that check-in process to continue

1 to flow should there be a technical issue.

2 **Q.** Thank you. I want to shift gears a little bit.

3 Do you have experience in Colorado dealing with different  
4 kinds of federal or state certification of new election systems  
5 or equipment?

6 **A.** Yes.

7 **Q.** If new equipment has to obtain both state and federal  
8 certification, how long of a process is that typically and what  
9 does that involve?

10 MR. BELINFANTE: Objection. Relevance. She's  
11 testifying about how long it takes in Colorado, which has  
12 nothing to do with Georgia or why we are here.

13 **Q. (BY MR. BROWN)** Let me ask you this question. Assume that  
14 Georgia requires federal certification of its election  
15 equipment. Just assume that. I'm not asking you to testify to  
16 that. Assume that it also requires some kind of state  
17 certification.

18 Based upon your experience both in Colorado and your work  
19 around the country, what is involved in getting election  
20 equipment certified and how long does it take?

21 MR. BELINFANTE: Same objection, Your Honor.

22 THE COURT: Why don't you just, first of all, say how  
23 long did it take you in Colorado. Did you work with that  
24 issue?

25 THE WITNESS: Yeah. We were the recipient I guess I

1 would say of some of this. It depends. I mean, federal  
2 certification is federal certification. If something is  
3 already federally certified, there is no additional time that  
4 it takes.

5 State depends on who is doing the certification, what  
6 the timeline looks like, the responsiveness of the vendor. So  
7 I mean in a short window, it could be 30 days. It could take  
8 90 because of the responsiveness back and forth.

9 So it really just kind of depends on what that looks  
10 like. And in my experience, that time variable has varied  
11 significantly depending on the vendor, what is in place, and  
12 the, you know, sort of back and forth and how specific the  
13 state was with their direction on certification.

14 **Q. (BY MR. BROWN)** Do you have experience in large scale  
15 installations of new election systems in Colorado?

16 **A.** Yes.

17 **Q.** And what is the biggest that you have been involved in in  
18 Colorado?

19 **A.** So the biggest for me was both the implementation at  
20 Denver with the paper ballots and new central count  
21 environment. And then when we went to a new voting system in  
22 2015, we were actually the first county to pilot. And Denver  
23 actually worked with a vendor to design most of the elements of  
24 the system that are now in place statewide. But we implemented  
25 that as the first county and rolled that out in the 2015

1 municipal cycle.

2 **Q.** Well, how long did that take from post to post?

3 **A.** So Colorado overall in terms of moving to a new voting  
4 system post the policy reforms that we experienced in 2013  
5 started in the very beginning of -- middle of 2014 with what  
6 was called a Uniform Voting System Committee. So it was a  
7 statewide committee that the Secretary of State started to have  
8 conversations with all different stakeholders about what would  
9 be included in a voting system.

10 There were all kinds of considerations. In fact, I think  
11 there was even a presentation from Kennesaw State about how  
12 Georgia was doing their process. And the decision for the UVS  
13 Committee in Colorado at that time decided that that wouldn't  
14 be something that would work in Colorado. We went away from  
15 that.

16 But that group sort of started deliberations in a public  
17 way about what a voting system would look like. Simultaneous  
18 to that group, Denver started conversations with the vendor  
19 that would ultimately be piloted in Denver and piloted  
20 elsewhere about designing a system that effectively supported  
21 the new process and policies that we put in place.

22 For instance, I told the vendor at the time we're not  
23 going to buy any proprietary hardware. We want commercial  
24 off-the-shelf hardware with software that supports it. We will  
25 not be buying any more proprietary hardware, mainly because it

1 is ten times as much as the cost of commercial off-the-shelf  
2 products and, frankly, less accessible.

3 So we started designing what that would look like. That  
4 system was piloted in May of 2015. So conversations and  
5 committees started in the end of -- or beginning of 2014 at  
6 some point. Pilot in Denver in 2015. Pilot in other counties  
7 as well as three other vendor systems in November of 2015. And  
8 then after that, there was a phased approach of segments of the  
9 state in terms of counties leading up to the primary election  
10 in 2016.

11 **Q.** Thank you. Based upon your experience at Vote at Home and  
12 in Colorado, are you aware of a new system installation that is  
13 larger or more complex than the one that Georgia is  
14 undertaking?

15 **A.** No.

16 **Q.** Thank you.

17 Very quick question on early voting. When you have  
18 hand-marked paper ballots in Denver and you also have early  
19 voting, how did you when you were overseeing elections get  
20 enough ballots to each polling location, given that they are  
21 going to be at more than one precinct?

22 **A.** So there's really two different options in terms of  
23 managing paper ballot inventory at early voting locations. We  
24 chose -- in the first few cycles of doing this, we chose  
25 preprinted ballot stock. So we had giant security cabinets



1 created that had locks and seals on them.

2 But we basically had 450 different slots, if you will. It  
3 kind of looked like giant, you know, paper processing plants.  
4 But they were all cabinets that were secured. And we would  
5 take those out to each early voting site. We had ballot stock  
6 where we basically had a formula where we would stock more  
7 styles that were in and around the vicinity of that particular  
8 location.

9 We used GIS techniques and other predicative tools to  
10 determine the inventory that we would need. And then because  
11 we were processing voters in that statewide voter check-in  
12 process, we knew where the inventory was coming down realtime.  
13 And then we would literally send out proactively if we needed  
14 to ballot stock to replenish in the middle of each day or at  
15 the end of each day. But we had a constant view of what that  
16 looked like.

17 So actually operationally when you do something like that  
18 it doesn't take that much to do. And I will say that in 2008  
19 Denver actually voted more people early voting than LA County  
20 did at that time. So we had -- we had over 50,000 people go  
21 through early voting in Denver in 2008 primarily on a paper  
22 ballot.

23 The other method is ballot-on-demand printers. And that  
24 is more widely used now across Colorado with a paper backup  
25 stock available. But ballot on demand essentially allows you

1 to not carry that kind of inventory and instead print on demand  
2 as voters come in.

3 **Q.** And in Denver, how many different ballot styles did you  
4 use for the 2008 election?

5 **A.** It was 426. I think I have that number right. It has  
6 been 11 years. I think that is right.

7 MR. BROWN: That's all my questions. Thank you,  
8 Ms. McReynolds.

9 CROSS-EXAMINATION

10 BY MR. BELINFANTE:

11 **Q.** Ms. McReynolds, do you know when the first elections in  
12 Georgia will be after this hearing?

13 **A.** I think you have some in November 2019.

14 **Q.** Okay. Are you aware that we also have some elections  
15 occurring in September of this year?

16 **A.** I think I read that somewhere, yes.

17 **Q.** And are you familiar with Georgia law regarding -- let me  
18 back up.

19 Are you familiar with Georgia early voting?

20 **A.** Yes. I have looked at a couple of the statutes related to  
21 that.

22 **Q.** And do you know when for the September elections early  
23 voting commences?

24 **A.** I believe it is two weeks -- two and a half -- slightly  
25 over two weeks. I might have that wrong. So I'm sorry.

1 **Q.** Are you aware that the Coalition plaintiffs have said that  
2 paper ballots should be applied in any election in Georgia  
3 occurring after October 1 of this year?

4 **A.** Yes. I read that in the -- I think one of the filings.

5 **Q.** And you think that -- or you have testified that you  
6 believe Georgia municipalities and counties could move to an  
7 all paper ballot by those October -- by the elections occurring  
8 after October 1?

9 **A.** I have testified that they are already using paper ballots  
10 with mail ballots. So every jurisdiction in Georgia is already  
11 processing paper ballots. So expansion of that similar to what  
12 we did in Colorado is not a massive process change because it  
13 is already occurring.

14 **Q.** Okay. So that is a yes?

15 **A.** Yes.

16 **Q.** Okay. And do you have an opinion regarding whether all  
17 those cities and counties that may have elections in September  
18 could also be done on paper ballot?

19 **A.** Depending on the outcome of the decision of the Court,  
20 yes, I think it could be. But it definitely depends on  
21 timelines.

22 **Q.** So it would depend on when the Court issues -- at what  
23 point would you say it is too late to ask a city or county to  
24 conduct an election on paper ballot?

25 **A.** I think it would depend very much on contracts that are in

1 place in terms of printing, some of those details, which I do  
2 not have answers to.

3 **Q.** Okay. And in terms of feasibility, you would agree with  
4 me that several factors go into determining if a city or county  
5 government -- if it would be feasible to do that, including  
6 things like budget constraints; is that correct?

7 **A.** Yeah, that could be a factor.

8 **Q.** Okay. And time?

9 **A.** Time would be a factor as well.

10 **Q.** And I believe you testified earlier about in Colorado you  
11 had to get the, quote, legal flaws fixed first. That would  
12 also apply to Georgia elections at least in theory; correct?

13 **A.** When I said -- when I testified about the changes we made  
14 in Colorado, that was more about the voting experience. We  
15 were already using paper ballots prior to changing our policies  
16 in 2013.

17 **Q.** Would you agree with me that voting -- that the procedures  
18 for replacing voting systems vary by state?

19 **A.** Yes.

20 **Q.** And Colorado has 3.8 million registered voters; is that  
21 right?

22 **A.** Yes.

23 **Q.** And I believe you testified there are 64 counties in  
24 Colorado?

25 **A.** Yes.

1 Q. Do you know how many counties are in Georgia?

2 A. 159, 69. Something like that.

3 Q. 59.

4 A. 59. I had it right the first time.

5 Q. The -- and you testified in your declaration though that a  
6 key difference between Denver's current system of voting and  
7 what the Coalition plaintiffs proposed is a very high component  
8 of mail balloting in Denver.

9 Do you recall that?

10 A. Yes.

11 Q. Isn't it about 95 percent of the mail -- or the ballots  
12 that come in in Denver are done by mail?

13 A. So we mail a ballot to everyone in Colorado before every  
14 election. In Denver, about 95 percent of people use that  
15 ballot that was mailed to them. And the remaining five percent  
16 show up in person and either vote on a hand-marked paper ballot  
17 or on a ballot marking device.

18 Q. Do you have any idea of what the rate of mail-in balloting  
19 is in Georgia?

20 A. Yes. I think it was just slightly over 20 percent in one  
21 of the most recent elections that I saw.

22 Q. Is it true that you have given Georgia high marks for its  
23 mail-in ballot system?

24 A. No. No. That is why I was down here in the spring.

25 Q. I'm sorry. Was it for the no excuse absentee?

1 **A.** Sort of.

2 **Q.** Sort of?

3 **A.** There is a lot of improvements that could be made, which I  
4 have suggested in my affidavit.

5 **Q.** Okay. You would agree with me that Georgia could not at  
6 least in the 2019 elections likely see the type of mail-in  
7 ballots that you see in Colorado; is that right?

8 **A.** I don't agree with that. I think it could -- I think it  
9 could go up quite significantly if there were a couple of  
10 changes made.

11 **Q.** Okay. But not to 95 percent?

12 **A.** No.

13 **Q.** Now, you testified about -- let me ask this and back up a  
14 second.

15 Denver, is it a county and city government? Is it a  
16 consolidated government?

17 **A.** It is a city and county municipality.

18 **Q.** And there is one board of elections for the city and  
19 county of Denver; is that right?

20 **A.** There is one elected clerk and recorder.

21 **Q.** And the process I believe you testified for Denver to  
22 transition from DREs to handheld ballots took place from 2005  
23 to 2007?

24 **A.** No. So it started -- it started right around 2005 and  
25 kind of happened in incremental phases over a few year period.

1 Q. I see. How many precincts are in Denver? And when I say  
2 Denver, I mean the city/county.

3 A. Right now or back then?

4 Q. In 2005 and then in 2007, if you know.

5 A. It was over 400 in both. I'm not sure of the exact number  
6 but at least 426.

7 Q. And you also testified that when Denver or maybe it was  
8 Colorado went from an e-pollbook to paper that took some time.  
9 How much time did that take?

10 A. E-pollbook to paper, what do you mean?

11 Q. I believe you said you had some experience with the  
12 e-pollbook and there were technical failures and there was a  
13 transition where you went to just paper polling books; is that  
14 right?

15 A. The failure of the e-pollbook occurred in 2006 in  
16 November. Denver tried vote centers in lieu of polling places,  
17 and there was a technical failure with the vendor in the  
18 e-pollbook that was used. So Denver made the decision in the  
19 transition to paper ballots to go back to polling places with  
20 paper pollbooks for 2007 and 2008.

21 Q. Okay. So between the first election that you made that  
22 transition -- or between the last election that was all  
23 e-pollbook and the first election where you used paper, how  
24 much time was involved there?

25 A. About a year by the time. Because in 2007 all three

1 elections that we ran that year were mail ballot elections that  
2 just had a limited number of early voting sites available. So  
3 we didn't have polling places in the year of 2007.

4 **Q.** And -- okay. At the time that Denver made its transition  
5 from DRE-based voting to paper ballot voting, was Denver in any  
6 way having a paper ballot form like Georgia does for absentee  
7 ballots or provisional ballots?

8 **A.** Yes.

9 **Q.** And it still took two to three years to get it completely  
10 transitioned?

11 **A.** No.

12 **Q.** I thought it took from 2005 to 2007. Is that not your  
13 testimony?

14 **A.** No. My testimony was that we transitioned from the kind  
15 of full DRE over that period of time and then bought some  
16 accessible HAVA equipment in the time period. But the paper  
17 ballots -- the mail ballots were always an option during that  
18 time.

19 The full polling place with paper ballots and all of that  
20 was completely rolled out for the 2008 presidential election.  
21 From '6 to '8, there was no polling place elections in between.  
22 It was all mail ballot elections for 2007.

23 **Q.** Bottom line, it wasn't done in a matter of weeks or  
24 months; correct?

25 THE COURT: It -- I'm just trying to understand.



1 MR. BELINFANTE: I'm sorry.

2 THE COURT: What is it? Is it just simply being able  
3 to produce a paper list of voters, or is it something else that  
4 you're including in it?

5 MR. BELINFANTE: Good point.

6 **Q. (BY MR. BELINFANTE)** The transition for voters voting not  
7 on a DRE, the removal of the DRE, that did not take place over  
8 a period of weeks or months; is that correct?

9 **A.** Actually it did. Because in 2007, we ran our first  
10 election that year in January, which was two months after the  
11 November vote center election that was mostly -- it was all  
12 DREs with mail ballots. And that 2007 January election was all  
13 hand-marked paper ballots because we mailed a ballot to  
14 everyone. And that is what they returned to us. So in less  
15 than two months, we implemented that.

16 **Q.** And that was just in Denver?

17 **A.** Yeah. It was for a Denver election.

18 **Q.** And as a former administrator of Denver elections, are you  
19 familiar with the budget of the election division in Denver at  
20 least in 2017?

21 **A.** Yes.

22 **Q.** And was it about \$4.1 million?

23 **A.** Yes.

24 **Q.** Do you -- what was the population of Denver in roughly  
25 2018? Do you know?

1 **A.** In 2018?

2 **Q.** Yes.

3 **A.** Just population I think Denver is right about 750,000.

4 **Q.** Okay. Are you familiar with Dekalb County in Georgia?

5 **A.** No.

6 **Q.** If I told you that Dekalb County was 756,000 people  
7 roughly, do you have any reason to disagree with that?

8 **A.** No.

9 **Q.** If I told you that Dekalb County's budget in 2017 for  
10 elections was 2.25 million, would you have any reason to  
11 disagree with that?

12 **A.** No.

13 **Q.** Would you agree with me that the budget that a county has  
14 in its election division can certainly impact how quickly it  
15 can transition from a purely -- from a DRE and paper ballot  
16 system to an exclusively paper ballot system?

17 **A.** Potentially. But it depends on what that elections office  
18 is responsible for. In my experience in Denver, we have  
19 greater -- we have more responsibilities than most election  
20 offices because we manage campaign finance and various petition  
21 processes and other things that most counties in other states  
22 do not have.

23 So our budget is elevated also based on the number of  
24 elections. So I would have to look at the number of elections  
25 that county was conducting that year versus what Denver was

1 doing. Because the difference is more likely about those  
2 factors, not about the voter count.

3 **Q.** But you have not looked at Georgia counties with regard to  
4 the factors you just --

5 **A.** I don't know those factors for that particular county.

6 **Q.** Or for any county in Georgia; is that right?

7 **A.** That is correct. I haven't looked at any budgets this  
8 year.

9 **Q.** In your original declaration at Paragraph 19, you were  
10 talking about it is -- you state that it is imperative that the  
11 correction of the DRE electronic pollbook and voter  
12 registration records and the reconciliation of discrepancies  
13 between the two records be undertaken immediately as a serious  
14 effort. You continue and say, research and confirming accurate  
15 information and correcting errors will likely take weeks of  
16 work and must begin immediately, regardless of what voting  
17 system is used in November's election.

18 Do you recall writing that?

19 **A.** Yes.

20 **Q.** Do you still believe that?

21 **A.** Yes. That was my affidavit in 2018.

22 MR. BELINFANTE: I have no further questions at this  
23 time. Thank you.

24 CROSS-EXAMINATION

25 BY MS. BURWELL:

1 Q. Good afternoon.

2 A. Good afternoon.

3 Q. My name is Kaye Burwell. I only have a few questions for  
4 you.

5 I saw in your declaration that you said that Denver's  
6 voter population -- registered voter population is 500,000?

7 A. That is about right.

8 Q. How many scanners do you-all have?

9 A. Central count scanners or what do you mean by scanners?

10 Q. Scanners -- optical scanning units.

11 A. So I think now in Denver there are 12 to 15 in the  
12 counting facility.

13 Q. And is all of the counting done in that counting facility?

14 A. Yes.

15 Q. Do you know how many registered voters there are in Fulton  
16 County?

17 A. I think it is around 700,000.

18 Q. Okay. How did you get that information?

19 A. Well, I toured Fulton County about nine or ten years ago  
20 with my former boss. We toured the elections office in  
21 Atlanta, and I feel like that was around the number that I  
22 had -- that I had been told at that time.

23 Q. That was ten years ago?

24 A. Around. Maybe a little less. But around that.

25 Q. Okay. And do you know how many optical scanners Fulton

1 County has?

2 **A.** No.

3 **Q.** And would you agree with me that the number of scanners  
4 necessary would depend on the number of voters?

5 **A.** Yes. And it depends on the nature and the type of ballot  
6 counting occurring and where it is and all of that. Yeah.  
7 Precinct scanners versus central count is very different.

8 **Q.** So you are saying that you can either -- you can either  
9 count in one place or you can count in multiple places;  
10 correct?

11 **A.** Or a combination of both, yeah.

12 **Q.** So the number of scanners you would need would depend on  
13 which of those methods you used, either central counting,  
14 counting elsewhere, or both; correct?

15 **A.** Right. And precinct -- if you are counting in the  
16 precinct, you need a lot more equipment. A significant amount  
17 of equipment.

18 **Q.** Do you have any indication of how many scanners -- I know  
19 in your declaration you had said you believed that there were  
20 900 scanners available in the State of Georgia.

21 **A.** Yes.

22 **Q.** Where did you get that information from?

23 **A.** I saw that in one of the -- I think a news article. And  
24 then I also saw it in the filing that the Coalition filed in  
25 their brief.

1 Q. Okay. So your -- the information you have provided isn't  
2 personal information to you? It is information you gleaned  
3 from the plaintiffs?

4 A. Different news -- and a few news articles I think that I  
5 had seen at the time.

6 Q. Okay. So did you ever talk to the journalist that  
7 authored the news article to determine where they got their  
8 information from?

9 A. No. No, I did not.

10 Q. Now, one of the things you said in your declaration was  
11 that counties could use ballot-on-demand printers?

12 A. Yes.

13 Q. Correct? Do you know if there are any counties that  
14 actually have ballot-on-demand printers?

15 A. I believe that I heard at a conference at some point a  
16 representative from Georgia talking about ballot-on-demand  
17 printing being utilized here in the State of Georgia.

18 Q. But you don't know whether ballot-on-demand printing is  
19 available in every county in the state; correct?

20 A. I do not know if every county has that capability. And I  
21 don't know if the vendor has offered that as a potential  
22 solution.

23 Q. And if someone was going to use ballot-on-demand printers  
24 and didn't have them, they would need to source those; correct?

25 A. Yeah. And they would -- there are many options for that

1 type of technology. It doesn't require a voting system vendor  
2 to provide that.

3 **Q.** In Colorado, it doesn't provide a voting system vendor?  
4 Is that what you are saying?

5 **A.** In most of the states that have this, the ballot-on-demand  
6 printers are often different from the voting system provider.  
7 So there are ballot -- there is ballot-on-demand printing  
8 software and equipment that is not voting system vendor driven.

9 **Q.** Are you familiar with the State of Georgia's requirements?

10 **A.** On ballot-on-demand printing?

11 **Q.** Correct.

12 **A.** Not the current -- not the current, if there are any. I'm  
13 not aware of any current procedures on it.

14 **Q.** And I think you already answered this. But with respect  
15 to the sourcing of scanners, you're not familiar with the  
16 requirements of the Secretary of State with respect to  
17 certification of scanners prior to being used?

18 **A.** I am -- I understand that Georgia requires federal  
19 certification and also state certification.

20 **Q.** And are you familiar with the Secretary of State's process  
21 for procuring election equipment, such as scanners?

22 **A.** I understand it to be an RFP process followed by selection  
23 of a vendor followed by certification.

24 **Q.** But you have not been involved in any of those things?

25 **A.** No.

1 Q. It is just your understanding?

2 A. I have not been an election official or involved in  
3 procuring a system in Georgia.

4 Q. And do you have any familiarity with the Secretary of  
5 State's process for deploying election equipment after it has  
6 been sourced?

7 A. No, not at this -- not at the current.

8 THE COURT: Let me just say in the interest of time  
9 and in the defendants' time as well, I think that the witness  
10 has been very forthright about the scope of her experience and  
11 has been useful for both parties. But I'm not sure it is -- I  
12 mean, she's not really extending herself as an expert about the  
13 Georgia procurement process. So that's sort of clear. I don't  
14 know that it is -- I don't think the Court has to be educated  
15 about that.

16 MS. BURWELL: Well, I was asking because it goes to  
17 the issue of whether or not it can be done within a certain  
18 period of time.

19 THE COURT: But if she doesn't have any express  
20 knowledge beyond a generalized knowledge of the Georgia  
21 procurement process, I don't think -- to the extent she has  
22 expertise, that is not being extended as her expertise. She is  
23 basically saying these things are feasible. You are all going  
24 to have to have other evidence about -- and they will -- about  
25 the process.



1           But I'm not sure it is useful given the limited  
2 amount of time since she hasn't again conveyed that her  
3 expertise is in the procurement process or on the Georgia  
4 regulations. I don't know that -- I wouldn't in any way  
5 consider her an expert on that, much less being able to testify  
6 based on her experience as to a process that is identical to  
7 Georgia.

8           Her experience is useful. But it has its limits  
9 relative to Georgia. That is clear. So you can go on. You  
10 can use your time as you see fit. But keep on going. But I'm  
11 just telling you -- I'm just sort of -- in all my comments here  
12 again, I'm going to say I must have talked a minute. I'll take  
13 away -- I will deduct it from your time. But that is your  
14 business.

15           MS. BURWELL: Yes, Your Honor. Just so the Court  
16 knows, my point was the fact that she doesn't have that  
17 experience goes to her opinion with respect to how much time it  
18 would take to implement a system. And so that was the only  
19 point I was making.

20           THE COURT: You go on as you see fit.

21           MS. BURWELL: That was the only point I was making.

22 **Q.**    **(BY MS. BURWELL)** You had also in your declaration talked  
23 about ballot printing and ballot printing companies that you  
24 had contacted?

25 **A.**    Yes.

1 Q. And you didn't identify any of those companies. But what  
2 size ballot did you discuss with these companies that you  
3 contacted?

4 A. So the range was 15 inches up to 19 inches two-sided.  
5 Again, all of that varies by, you know, the style of the  
6 election, all that. And I've worked with various vendors over  
7 time.

8 And given my extensive experience not only with mail  
9 ballot elections but paper ballot elections, cost and things  
10 like that are pretty easy for me to determine given the number  
11 of RFPs I have been through.

12 So I reached out to one of the most recent vendors that  
13 Denver has used to determine what an average cost would be for  
14 the ballot.

15 Q. So that was the cost that would be the average cost for a  
16 ballot in Denver?

17 A. No. It was the same quote that they give to multiple  
18 different jurisdictions around the country because that is what  
19 I asked them for, a flat paper ballot.

20 Q. Okay. So you just asked them for a flat paper ballot 15  
21 to 19 inches two-sided?

22 A. Yes.

23 Q. Correct?

24 A. Yes.

25 Q. And that was the price that they gave you?

1 **A.** That is the estimated price, yes. And that vendor prints  
2 more paper ballots than any other vendor in the country.

3 **Q.** So it was only one vendor that you contacted?

4 **A.** The one that I mentioned in the affidavit -- I contacted  
5 others. But the one that I mentioned in the affidavit was in  
6 between cost from some of the others. So some of them were  
7 more, and a few of them were less. But that vendor has the  
8 capability to print and does print for the largest jurisdiction  
9 in the country.

10 So given that this is a statewide rollout here in Georgia,  
11 I wanted to understand from a volume perspective what the cost  
12 would be for a ballot.

13 **Q.** Okay. So that was sort of -- that was an approximation?  
14 You said some gave you a higher cost and some gave you a lower  
15 cost you said?

16 **A.** The cost that is in there is the average cost for that  
17 range of a ballot. Some vendors that don't print as high  
18 volume or have different processes or efficiencies within their  
19 operations might charge more. There was a few vendors that  
20 came in less than that. And I had not seen a cost under that.  
21 So I put in there my best estimate based on the research and  
22 review that I did.

23 **Q.** Okay. Let me ask you one last thing. You had mentioned  
24 that you spoke to somebody in Adams County that gave Georgia  
25 154 scanners?

1 **A.** Yes. So the clerk in Adams County, Colorado, they had --  
2 they had the AccuVotes, the similar system that y'all have  
3 here. And Adams County, Colorado, it was my understanding  
4 based on that conversation had transferred the equipment that  
5 they were no longer using to the State of Georgia.

6 **Q.** Do you know if those -- did you talk to anybody at the  
7 State of Georgia to determine whether or not those scanners  
8 were actually ever used in Georgia?

9 **A.** No.

10 **Q.** And so you don't know if they were ever certified in  
11 Georgia for use in Georgia?

12 **A.** It was hardware. So the certification -- you already have  
13 that equipment certified in the State of Georgia. It was the  
14 hardware that was being sold by Adams County because they  
15 bought a new voting system that was transferred. And I don't  
16 know if they went through a vendor to do it. But it was my  
17 understanding their equipment was transferred to Georgia ahead  
18 of 2016.

19 **Q.** But you have no information on whether or not that  
20 equipment was ever used in Georgia?

21 **A.** No. I didn't ask anybody if that had been used.

22 MS. BURWELL: Thank you.

23 THE COURT: What were the prices? I'm trying to find  
24 your affidavit. What was the letter of the affidavit?

25 MS. BURWELL: Excuse me.

1 THE COURT: What was the letter? What was the  
2 exhibit number or letter of the affidavit?

3 MS. BURWELL: Her affidavit is Document 277 starting  
4 at Page 93.

5 THE COURT: Okay. It is not in this group. All  
6 right. Thank you.

7 Do you remember what the mid level price was?

8 THE WITNESS: Twenty-six cents per ballot.

9 When you -- and this is something that we did when we  
10 transitioned. But when you factor in the cost of, you know,  
11 less equipment, less delivery, all of that, coupled with the  
12 cost of the ballot printing, you actually see more of a savings  
13 when you are not having to have as much equipment out in the  
14 field and process all of that out in the field. So it varies.  
15 But we saw a savings.

16 THE COURT: All right. Thank you.

17 MR. BROWN: I just have one follow-up question, Your  
18 Honor.

19 REDIRECT EXAMINATION

20 BY MR. BROWN:

21 **Q.** You testified that you saw some savings. And just so the  
22 record is clear, you saw some savings in the transition from  
23 DREs to hand paper ballots? Is that what you meant?

24 **A.** Yes. So we no longer needed a warehouse. We had a  
25 40,000-square-foot warehouse where we had DREs that went away.

1 That was a significant cost. Delivery costs for the large  
2 machines was a significant reduction in savings.

3 So yeah, there were multiple costs down. And the other --  
4 the other factor that we found was the expense of maintaining a  
5 DRE system mainly because the traditional DREs might cost \$4000  
6 apiece. And to replace a screen or any of the components could  
7 be upwards of \$1000 each. So the newer technology with  
8 off-the-shelf hardware is much less expensive than the  
9 proprietary hardware that most states or most states purchased  
10 after HAVA.

11 **Q.** As an election administrator in Colorado, would you be  
12 concerned with the purchase of used AccuVote scanners?

13 **A.** So there is a whole process. I mean, the jurisdictions  
14 around the country have done this over a long period of time.  
15 To sort of prepare them and then recertify them, we have a  
16 trusted build process that we call it in Colorado.

17 So that process of implementing is one thing. But there  
18 have been many transfers of equipment around the country that  
19 are certified federally and used elsewhere.

20 MR. BROWN: Thank you very much for your testimony  
21 today.

22 THE COURT: May this witness be excused?

23 MR. BELINFANTE: Your Honor, could I have actually  
24 one follow-up question given the budget question that was just  
25 asked?

1 THE COURT: Yes.

2 RECCROSS-EXAMINATION

3 BY MR. BELINFANTE:

4 Q. Ms. McReynolds, again, you testified that the 2017 budget  
5 for the Denver elections division was about 4.1 million?

6 A. Yes.

7 Q. Are you aware that in 2018 6.1 million was appropriated to  
8 the elections division?

9 A. Yes.

10 Q. And in 2019 the estimate is 7.8 million?

11 A. Yes.

12 Q. Why are those costs going up?

13 A. Because there are more elections in those years, and there  
14 has been added services since the time that the 2007 election  
15 was in place.

16 Q. How many -- I'm sorry.

17 A. More staff and expanded technology. All of that. So  
18 there has been added services. If you look at the cost per  
19 vote, that has gone down.

20 Q. And --

21 A. And the population in Denver has also gone up by  
22 25 percent since 2007. A lot of people are moving from the  
23 east to the west it seems.

24 Q. 25 percent from 2007 to 2017; right?

25 A. Yeah. About that. Yeah.

1 Q. But the budget numbers I gave you, just so we're clear,  
2 were 2017, 2018, and 2019?

3 A. Right. But you asked me about 2007.

4 Q. No. I'm sorry. I was asking about -- that is what I  
5 wanted to clear up. My questions were about '17, '18, and '19.

6 A. '17 was low because there was one election that year.

7 Q. And then in '18 it goes to 6.1 million; right?

8 A. Gubernatorial and two other elections, yes.

9 Q. Sure. And then in 2019 it goes up again from 6.1 to 7.8?

10 A. Three elections and added responsibilities for campaign  
11 finance and technology.

12 Q. How many FTEs did you add for campaign finance and  
13 technology? Do you know?

14 A. Add in 2019?

15 Q. Yes.

16 A. I left in 2018 in August.

17 Q. Do you know how many, if at all, were added?

18 A. I think they added two for campaign finance. And the  
19 other aspect of 2019 was they had three citywide elections as  
20 opposed to '18, which only had two citywide elections and one  
21 special.

22 MR. BELINFANTE: Okay. Thank you.

23 THE COURT: May this witness be excused?

24 MR. BROWN: Yes, Your Honor. Thank you.

25 THE COURT: Thank you very much.



1           Is Mr. Barnes back?

2           MR. RUSSO: He is here.

3           THE COURT: So if he could come in. Thank you.

4           Thank you, Mr. Barnes. My apologies. I just want to  
5 remind you that you are still under oath.

6           Whereupon,

7                                   MICHAEL LEON BARNES,

8           after having been previously duly sworn, testified as  
9 follows:

10                                   REEXAMINATION

11          BY THE COURT:

12          **Q.** I was trying to digest your testimony at our break, and I  
13 realized I wasn't sure of a few things, and that is why I  
14 wanted to ask you back.

15            You were talking about the configuration of the ballot  
16 process and the use of the contractors. And I wanted to just  
17 make sure I got the sequence correctly and understood what the  
18 scope of what you did and they did was.

19            You indicated, as I understood it, that they were part of  
20 your team -- an important part of your team in doing the  
21 software to develop the ballot for the county; is that right?

22          **A.** Yes, ma'am. They are involved in building the database.

23          **Q.** Building the database for the ballot. And does that  
24 also -- is this routine? But does that also include a portion  
25 that deals with state officers who might also be -- or nominees

1 for election?

2 **A.** The process at hand is whenever -- when an election  
3 qualification closes and leading up to that time frame,  
4 whenever we're given notification that an election is scheduled  
5 in a jurisdiction, then that information is gathered through  
6 the Secretary of State's office, shared with our office, and  
7 then we share that information with our partners, our ballot  
8 building team.

9 **Q.** All right. Those three contractors are your ballot  
10 building team?

11 **A.** That is correct. Once they have the information in  
12 relation to candidates, jurisdictions involved, races involved,  
13 then they construct the initial database, the initial layout of  
14 the data set. Once they have --

15 **Q.** Let's just say it is Fulton County. They do it for Fulton  
16 County. And let's say it is also a year when there is a  
17 President and a governor being -- running. Though I don't  
18 think that usually happens at the same time. But -- all right.  
19 So let's just say it is the governor and a number of other  
20 statewide offices.

21 Would the member of the ballot team put those  
22 individuals -- those offices up also in the ballot?

23 **A.** Yes.

24 **Q.** Okay. He or she is responsible for doing both the state  
25 offices as well as the county offices?

1 **A.** All offices that are being contested in that jurisdiction.

2 **Q.** Okay. All right. And so they do that. And then he or  
3 she member of the team sends it to you or brings over --

4 **A.** They physically deliver it to us.

5 **Q.** They physically deliver it in a disc or --

6 **A.** On a CD or on a locked encrypted USB drive.

7 **Q.** And then it goes to you personally?

8 **A.** It comes to me or a member of my staff.

9 **Q.** Okay. And then you referenced there might be some  
10 correction at that juncture --

11 **A.** Uh-huh (affirmative).

12 **Q.** -- by one of you in the central office?

13 **A.** Uh-huh (affirmative).

14 **Q.** Is that by you or one of your staff members there?

15 **A.** It is by me or one of my staff members. We go through  
16 basically almost a line-by-line review of the data set to make  
17 sure that the right candidates are listed in the right order,  
18 names are spelled properly, that the proper audio files are  
19 attached to the proper names, that the races are in the proper  
20 order.

21 If we find anything that is not as it should be based upon  
22 State Election Board rules for ballot format, then we will  
23 correct the database. We also inspect the database.

24 **Q.** So you will correct what they have given you either on  
25 that thumb drive or on the --

1 **A.** We move the file from their thumb drive into our -- into  
2 our file array. We keep it in our file folders.

3 **Q.** As soon as it comes in?

4 **A.** Yes. Yes, ma'am.

5 **Q.** So you are not any longer working with theirs?

6 **A.** That is correct. We basically take the data off of the  
7 drive or the CD that they give us, and then we proceed from  
8 that point.

9 **Q.** Okay. And then you do the correction?

10 **A.** Yes.

11 **Q.** Now, what do you do in terms of when it comes in in terms  
12 of determining malware that might have been brought with it?

13 **A.** When -- again, when we get the CD or the drive, we first  
14 load that drive onto our public environment, not to our private  
15 environment. And my understanding of how my SOS IT operations  
16 have set up our public computers is that when that drive is  
17 inserted or if that CD is inserted, once the file is moved onto  
18 that public device, it is scanned for known malware.

19 Then once we have it there, then we transition it to  
20 another device, that USB drive that I talked about earlier that  
21 I use for moving files back and forth from my public and  
22 private device, the one that I format every time. Then that  
23 drive is placed into the public, formatted --

24 **Q.** Slow down for me because that is how I ended up having to  
25 have you come back.

1           You have got it in the public one, which is the Secretary  
2 of State's office?

3 **A.**    Yes, ma'am.

4 **Q.**    And it has run whatever scans it is going to run. And  
5 then it is put back on your -- on something for your -- you get  
6 something else for your -- it may not be a thumb drive, I  
7 realize. But something -- some type of drive that then you put  
8 it back -- which you use to put it back on your private  
9 computer?

10 **A.**    Right. To transfer it from my public CPU to my private  
11 air-gapped CPU.

12 **Q.**    All right. And are other people on your team in the  
13 Secretary of State's office doing that too, or is this just  
14 you?

15 **A.**    It is just me that moves the files from the vendor into  
16 our system. We do that on purpose. It is just me.

17 **Q.**    All right. And then you have it, and then does it go to  
18 other members of your team at that juncture?

19 **A.**    Once the file is in place on our -- basically our server  
20 is holding the file. Once the file is placed into a review  
21 folder on the server, then a member of my team -- we have a  
22 check sheet that is itemized of what we're looking at that is  
23 within a specific database within specific elections.

24           They will then download from the server a copy of that  
25 file. And it is saved to their local private CPU. The local

1 private CPU is where the GEMS executable application or the  
2 GEMS application is residing. The GEMS application is not  
3 residing on the server. It is just -- the server is just  
4 holding files. The GEMS application is on the individual's own  
5 CPU.

6 They download a copy of that file onto their computer.  
7 They open up the data file on their computer. And they begin  
8 examining it to make sure that it has been built properly, that  
9 all precincts are there, all district combinations -- that all  
10 ballots are there, all voting locations. That everything has  
11 been built properly.

12 **Q.** All right. So then if they make a correction because  
13 somebody's name has been spelled incorrectly or for whatever  
14 reason, they save it again on that. What happens then?

15 **A.** Right. They first -- after they have made the correction,  
16 the corrected file is residing on their personal CPU. They  
17 then create a backup copy of that file and save it back to the  
18 server. That saving action back to the server replaces the  
19 existing copy with the modified copy. So we only have one copy  
20 of the database sitting on the server.

21 **Q.** Is that the public server, or is that on your --

22 **A.** That is the private.

23 **Q.** That is the private, your units?

24 **A.** Yes. Everything constructed with the GEMS is done through  
25 the private environment.

1 Q. All right. So then what happens?

2 A. Then it moves from a review -- a review of the database  
3 function. Then the file is moved from one folder to another  
4 folder. That folder is for audio and visual inspection.

5 Once it is placed into that folder, we have a dedicated  
6 room in our office where a member of my team will go in, again  
7 copy that file from the server onto a private CPU in order to  
8 create an election media, a memory card that is then placed  
9 into a touchscreen device within that room. And then we look  
10 at the ballot on a DRE to again validate that all the races are  
11 appearing, all the candidates are in the proper order, that all  
12 the audio files are in place, that we do not see any -- any  
13 issues with the display of the ballot on the touchscreen.

14 Sometimes because of long questions or such, the screen  
15 doesn't look correct in the way it lays things out. So that  
16 would make us then make some subtle scaling adjustments in the  
17 display of the database, which requires us to touch the  
18 database again.

19 But once the audio and visual review is done, if there are  
20 no corrections that need to be made to it, then the individual  
21 that reviewed the data set will then go back to the server and  
22 just move the file from one folder in the server to a different  
23 folder.

24 Q. So what you create though, is that also the basis of  
25 creating the card -- the memory cards?

1 **A.** I'm not sure --

2 **Q.** Well, we know that -- as a voter, from the consumer  
3 experience, the voter experience, you are given a card, you  
4 stick it in, and it knows basically what precincts you are  
5 going to vote in and what you are going to get that is coming  
6 up. We have some voter affidavits who say I got the wrong one  
7 completely.

8 But I'm just trying to -- but it is what basically  
9 populates the screen that we see as voters; is that right?

10 **A.** That is correct.

11 **Q.** So I guess what I'm saying is: When you do all of this is  
12 the purpose -- the purpose is so that it will actually give the  
13 precinct and the county the software needed at that polling  
14 spot so that these cards can be stuck into -- I know that they  
15 program them in advance. But it will pull it up once you go in  
16 and try to vote?

17 **A.** Yes. It is making sure that if I select for base precinct  
18 or combo 101 that if I make -- if I ask the system to pull up  
19 that ballot that it pulls up the ballot that it should pull up  
20 for that --

21 **Q.** And you are generating all those cards at some point?

22 **A.** We are generating a memory card in order to inspect the  
23 DRE's ability to do such. We also can generate a voter access  
24 card within our facility that will -- we can insert into the  
25 touchscreen to validate that when you put that voter access



1 card in with a precinct designation and a ballot style that it  
2 brings up that particular ballot for the voter to review.

3 **Q.** So when you have gone through all the perfection process,  
4 then you send it to the -- when is it that you send it down to  
5 the county to review?

6 **A.** After we have completed our audio and visual review, then  
7 we generate the ballot proofs and the ballot database reports.  
8 And those items are then shared with the county through the SOS  
9 FTP location where they pull that information down to look at  
10 the ballot -- in optical scan format the layout of the ballot.  
11 The race -- the reports that we generate that we give to them  
12 shows them what precincts are active, what voting locations are  
13 active, so forth and so on.

14 When the county reviews that, at the conclusion of  
15 reviewing that, they either send us back a list of corrections  
16 that need to be made with signature or they send us back a  
17 signed-off sheet with signature.

18 **Q.** All right. And if they have corrections and you have to  
19 start -- you go back again?

20 **A.** That is correct.

21 **Q.** I know this seems very simple-minded, but I want to make  
22 sure I understand. When you -- when you are through and you  
23 are -- what are you providing to the county? It is now, you  
24 know -- it is the beginning of early voting.

25 What are you providing to the county at that juncture?

1 **A.** What we provide the county is a single CD with a single  
2 file on that CD. And that single file is their GEMS database.

3 **Q.** And what are they to use then for generating all the cards  
4 for the precincts?

5 **A.** They take that CD that has -- contains their GEMS  
6 database. And they insert it into their local GEMS computer  
7 within the county jurisdiction. And then once they have loaded  
8 the data file that is on the CD into their GEMS computer, they  
9 can then create the various media they need to power their  
10 touchscreen and optical scan units.

11 **Q.** So they are creating new cards for all that?

12 **A.** They are creating the official cards that will be used  
13 within the jurisdiction.

14 **Q.** And when the poll worker goes in the morning and opens up  
15 the system, what are they using?

16 **A.** What they are using -- the memory card has already been  
17 inserted into the touchscreen and tested in pre-election  
18 testing. And then what the poll worker simply does on election  
19 morning is they verify the seals on the devices, that they have  
20 the right units, and that they have remained sealed since the  
21 conclusion of testing.

22 If those things are correct, then they break the seals.  
23 They cut the seals. They open up the device. They have a key  
24 that unlocks two side -- a side component and a front component  
25 on the DRE. Behind one component is where the power button is.

1 Behind the other door is where the printer is.

2 They power the machine on. When the machine boots up, it  
3 recognizes that the memory card is inserted. It begins loading  
4 the election. It is reading the memory card to see that the  
5 memory card is in election mode.

6 And then whenever a machine is at zero in election mode  
7 when you turn it on, it automatically prints a zero report. So  
8 that is what the poll worker does in order to enable the  
9 touchscreen.

10 Once they have validated that the machine completes  
11 printing the report and that the report is showing zero, they  
12 roll that zero tape back up. They don't take it off. They  
13 sign it, they roll it back up, leave it attached to the  
14 printer. Then they close the printer compartment and lock it.  
15 And they close the side panel with access to the power button  
16 and lock that and then make sure the touchscreen is at the  
17 proper angle, that the privacy shields are in place. And it is  
18 ready to go.

19 **Q.** And the card remains in it?

20 **A.** Yes, ma'am.

21 **Q.** And then the card that we as voters put in is in a  
22 different portal?

23 **A.** That is correct. That's correct.

24 THE COURT: All right. I know everyone has got it  
25 down. But I just felt like I needed to make sure rather than

1 just zigzagging through it.

2 Are there any questions occasioned by mine without  
3 making a point but just for clarity so that we don't go back in  
4 four days and say I didn't understand something?

5 MR. RUSSO: I wanted to make one quick point or  
6 question, Your Honor, to see if I could help clear things up.

7 REDIRECT EXAMINATION

8 BY MR. RUSSO:

9 **Q.** Is the voter access card -- what is the voter access card?

10 **A.** The voter access card is the yellow card that a poll  
11 worker will hand to a voter once they have checked in within  
12 the polling location.

13 **Q.** That is different from the memory card?

14 **A.** That is correct.

15 THE COURT: Mr. Brown, did you have one thing?

16 MR. BROWN: One clarification of a question that you  
17 asked, Judge.

18 RECROSS-EXAMINATION (Further)

19 BY MR. BROWN:

20 **Q.** Mr. Barnes, did you say that when the contractor brings  
21 the CD back to the Secretary of State's office, to your office,  
22 the first time it is loaded it is loaded onto the public  
23 server?

24 **A.** Correct.

25 **Q.** Okay. And are these contractors going to be involved in

1 preparing the database for the pilot program?

2 **A.** I don't -- I can't answer that question because I don't  
3 know what vendor has been selected yet.

4 MR. BROWN: Okay. Thank you very much.

5 REEXAMINATION (Further)

6 BY THE COURT:

7 **Q.** One other question about the contractors. Are they  
8 full-time contractors, or do they have other jobs as well? I  
9 mean, I don't need to have a detailed thing. But are they --  
10 is that a condition that they are full-time contractors?

11 **A.** My understanding of these three individuals is their sole  
12 job with ES&S is to provide ballot building support for the  
13 State of Georgia.

14 **Q.** Could they have contracts though with other entities?

15 **A.** I'm not aware of any others that they have. And I don't  
16 know -- I don't know the answer to that question.

17 **Q.** They are not employees then though of ES --

18 **A.** I don't know if they are employees of ES&S or contractors  
19 of ES&S.

20 THE COURT: All right. Okay. Thank you.

21 Again, my apologies for dragging you back. I hope it  
22 was only from the Capitol.

23 MR. BROWN: I have, Your Honor, just one more  
24 question.

25 THE COURT: One more. And that is it, unless it

1 blows the situation up.

2 RE CROSS-EXAMINATION (Further)

3 BY MR. BROWN:

4 **Q.** In rough order of magnitude, what percentage of the  
5 ballots built by the Secretary of State's office are built by  
6 the contractors?

7 **A.** For the May 2018 general primary, we as a state built 61  
8 out of 159. For the July runoff, for the November general  
9 election, they were built by the contractors.

10 THE COURT: Runoff or what about just the November  
11 election?

12 THE WITNESS: The November election, I know for  
13 certainty that they built everything for the November election.  
14 I honestly don't remember if we built any for the runoff  
15 election or not.

16 **Q. (BY MR. BROWN)** The contractors built all the ballots for  
17 November?

18 **A.** That is correct.

19 MR. BROWN: Thank you.

20 THE COURT: All good? I thought we should be  
21 operating from the same fact plane.

22 MR. POWERS: Good afternoon, Your Honor.

23 THE COURT: Good afternoon. Who is your next  
24 witness?

25 MR. POWERS: Plaintiffs call Georgia State House

1 Representative and Gwinnett County voter Jasmine Clark.

2 COURTROOM DEPUTY CLERK: Please raise your right  
3 hand.

4 **(Witness sworn)**

5 COURTROOM DEPUTY CLERK: Have a seat. Loudly and  
6 clearly state your full name, and spell your last name for the  
7 record.

8 THE WITNESS: My name is Jasmine Clark, C-L-A-R-K.  
9 Whereupon,

10 JASMINE CLARK,

11 after having been first duly sworn, testified as follows:

12 DIRECT EXAMINATION

13 BY MR. POWERS:

14 **Q.** Good afternoon, Representative.

15 **A.** Good afternoon.

16 **Q.** What district do you currently represent in the Georgia  
17 State House?

18 **A.** I represent House District 108.

19 **Q.** Before we discuss some of your work in the legislature, I  
20 would like to turn to your personal experience voting in  
21 Georgia elections.

22 Representative Clark, have you experienced any problems  
23 trying to vote recently?

24 **A.** Yes, I have.

25 **Q.** And which election was that?

1 **A.** That was in the runoff to the primary in July of 2018.

2 **Q.** Thank you. And, Representative Clark, where were you  
3 trying to vote?

4 **A.** I was trying to vote at the Lucky Shoals Recreation Center  
5 in Gwinnett County.

6 **Q.** Representative Clark, could you please describe your  
7 experience trying to vote in the July 2018 election for the  
8 Court.

9 **A.** Yes. I woke up early to give myself enough time to go  
10 vote before I went to work. When I got to the precinct, I gave  
11 them my ID -- I filled out the paper, and I gave them my ID,  
12 and they typed my information into the e-pollbook. And the guy  
13 tells me that I'm in the wrong place and that I need to vote at  
14 the Korean church up the street.

15 However, because I was very in tune with exactly where I  
16 needed to vote, I had looked up this information countless  
17 numbers of times and I knew I was in the right place. So I  
18 told them no, I know I'm in the right place. This is  
19 definitely my polling precinct.

20 And he turned to the poll worker sitting next to him and  
21 was, like, you know, what do you think is going on? I showed  
22 them on my phone My Voter page where it said I was in the right  
23 place. So they sent me over to the poll manager.

24 The poll manager then looked for my name to be on a list  
25 of people I think that were new registrants, people who did not



1 vote or who were not registered in a primary but had registered  
2 maybe for the runoff. But my name was not on that list, as it  
3 should not have been because I had already been registered to  
4 vote.

5 After that, I got on the phone. I called Stephen Day, the  
6 Gwinnett County Board of Elections chair at that time, to tell  
7 him what was going on with me. And I also called the Voter  
8 Protection Hotline. And after a series of phone calls and  
9 about 25 or 30 minutes, they told me to go try again.

10 I went in. They did the same thing they did the first  
11 time. And then this time it showed that, yes, I do vote at  
12 Lucky Shoals. And so then they gave me the card, and I was  
13 allowed to vote.

14 **Q.** Thank you. Just to make sure I have all the facts  
15 straight, Representative Clark, what were the poll workers  
16 looking at when they informed you in the first instance that  
17 you weren't at the right polling place and you needed to go  
18 vote at the Korean church?

19 **A.** The electronic pollbook.

20 **Q.** And, Representative Clark, had you voted at the Lucky  
21 Shoals precinct in the past?

22 **A.** Yes, I have. I had just voted in the primary.

23 **Q.** Thank you. How many poll workers did you observe trying  
24 to look up in the electronic pollbook?

25 **A.** There were two there. It was a runoff. So there weren't

1 a lot of people there. So there were two poll workers.

2 **Q.** And how many times did you tell the poll workers that you  
3 were sure that you were at the right polling place?

4 **A.** Multiple times. I was very adamant that I was in the  
5 right place.

6 **Q.** In the first instance, were the poll workers offering you  
7 a provisional ballot or any type of ballot?

8 **A.** No. We never -- they never offered me a provisional  
9 ballot because, like I said, I was absolutely adamant that I  
10 was in the right place. So they were just trying to figure out  
11 what could have gone wrong.

12 **Q.** Representative Clark, do you think it might have just been  
13 some kind of poll worker error where maybe they typed something  
14 in wrong?

15 **A.** I don't think so. Because, as I said, there were two of  
16 them. One of them tried. And then when I was adamant, the  
17 other one kind of looked and made sure that the first one was  
18 doing the right thing.

19 And then when I came back in after 25 or 30 minutes of  
20 phone calls and I finally got back in and was able to vote,  
21 they did the exact same process except this time it showed me  
22 being in the right place.

23 **Q.** Representative Clark, are you certain that your vote in  
24 the July 2018 primary was actually counted?

25 **A.** No.

1 Q. Representative Clark, did you observe any other voters  
2 having an issue that day?

3 A. Yes. The interesting thing about my story is the first  
4 two people -- the two people in front of me also were told they  
5 were in the wrong place. And the reason why that stuck out to  
6 me is because both of them in some capacity mentioned how it  
7 was going to be a hardship for them to go to another polling  
8 place, one saying she was on her way to work and another where  
9 the guy said his wife gets off of work very soon before the  
10 polls close and so he needs to know exactly where she needs to  
11 go because she won't have time to go to multiple places.

12 Q. Representative Clark, how did you feel after -- after you  
13 left the polling place?

14 A. The whole -- the whole situation was very concerning to  
15 me. I had a lot of questions like, first of all, how could my  
16 information change in that short amount of time. I asked those  
17 questions to people on the board of elections. I didn't really  
18 get any answers, you know -- any specific answers as to how it  
19 could have happened. But -- so it left me feeling uneasy.

20 Q. In fact, do you make a recording describing your  
21 experience later that day?

22 A. I did. So when I got to -- when I finally got to work,  
23 when I got a break, I actually went on Facebook and did a  
24 Facebook Live video explaining my experience and just giving  
25 people the -- the tools to feel empowered when they go to the

1 poll. If they know where to go and they know they are in the  
2 right place, letting them know don't leave, you know, make sure  
3 that you do get to cast your ballot. Because I just don't want  
4 people to leave without voting.

5 **Q.** And is that recording reflected in the declaration that  
6 you submitted in this case?

7 **A.** Yes.

8 **Q.** Has your experience of trying to vote in the July 2018  
9 election caused you to be more focused on issues related to the  
10 administration of elections as a legislator?

11 **A.** Yes, it has.

12 **Q.** And have you been involved at all in the election  
13 administration arena in the 2019 legislative session?

14 **A.** Yes, I have. So, for example, I am a member of the  
15 Democratic caucuses voting rights caucus, as well as bicameral,  
16 bipartisan voting rights caucus that we have in the Georgia  
17 General Assembly. And also when there was legislation that  
18 dealt with electronic voting or just voting in general -- any  
19 type of legislation dealing with voting, I was pretty  
20 hyperfocused in trying to stay abreast, including speaking to  
21 House Bill 316.

22 **Q.** And what involvement did you have in the legislative  
23 process when House Bill 316 was considered?

24 **A.** So I basically just listened. I listened in at committee  
25 hearings. And I spent a considerable amount of time

1 researching and again speaking to the bill in the well in the  
2 House floor.

3 **Q.** Representative Clark, have you reviewed election-related  
4 legislation passed during the 2019 legislative session in  
5 addition to House Bill 316?

6 **A.** Yes. I have also had an opportunity to look at House Bill  
7 392 as well. It is a lot shorter than House Bill 316. But  
8 yes, I have been trying to stay abreast as much as possible on  
9 any legislation having to do with elections.

10 **Q.** Thank you. And after reading House Bill 392, do you think  
11 the legislation will prevent experiences like the one you had  
12 from happening in the future?

13 **A.** I am not certain of that, no.

14 **Q.** And why is that?

15 **A.** I think that while it -- the intentions --

16 MR. LAKE: Your Honor, I believe this testimony goes  
17 beyond the scope of the witness' knowledge in terms of the  
18 effect of the bill and the impact of the bill is beyond the  
19 scope of what she can speak to. She is not an expert  
20 testifying as to the --

21 MR. POWERS: We'll withdraw the question.

22 THE COURT: All right. Thank you.

23 MR. POWERS: Yes. No further questions.

24 THE COURT: Okay. Go ahead.

25 MR. RUSSO: Your Honor, I just wanted to point out

1 that it doesn't look like the clock has been moving.

2 THE COURT: Reset?

3 MR. RUSSO: Yes, ma'am.

4 THE COURT: How many minutes are we into it? And  
5 let's reset the clock with the beginning of the defense  
6 examination.

7 All right. We'll -- when we break, we'll all talk  
8 about what the hours are. But can you reset it for --

9 CROSS-EXAMINATION

10 BY MR. LAKE:

11 Q. Good afternoon, Ms. Clark.

12 A. Good afternoon.

13 Q. My name is Brian Lake. I represent the defendants in this  
14 case. I have a few questions for you. I would like to start  
15 with one that I believe should be fairly straightforward.

16 Your testimony regarding the issues you had of voting  
17 previously that's in reference to the July runoff election; is  
18 that correct?

19 A. Yes.

20 Q. And did you vote in the most recent November general  
21 election 2018?

22 A. Yes.

23 Q. That seems a silly question given your title. But I have  
24 to ask it.

25 Were you on the ballot in November of 2018?

1 **A.** Yes.

2 **Q.** And did you experience any difficulties in the November  
3 election of pollbook issues or anything else?

4 **A.** No.

5 **Q.** None? Thank you.

6 And going back to the July election, you mentioned in your  
7 testimony, I believe, earlier that you contacted the Voter  
8 Protection Hotline when you had the issue; is that correct?

9 **A.** Yes.

10 **Q.** Do you know what organization, if any, the Voter  
11 Protection Hotline is affiliated with?

12 **A.** No, I don't know who -- I just know that there was a phone  
13 number that you were told to call if you were having issues  
14 voting. So that is what I did.

15 **Q.** Do you recall who provided you that number or where you  
16 got that number?

17 **A.** Social media.

18 **Q.** Okay. Do you know if that number is run by the Secretary  
19 of State's office or another organization?

20 **A.** I do not think it is run by the Secretary of State's  
21 office. But I do not know.

22 **Q.** May I ask -- your election occurred in November of 2018;  
23 is that correct?

24 **A.** Yes.

25 **Q.** And that is your first time being elected; correct?

1 **A.** Yes.

2 **Q.** And may I ask has your campaign ever received any money  
3 from an organization known as Fair Fight?

4 **A.** Yes.

5 **Q.** And when was that?

6 **A.** In January of 2019.

7 **Q.** Okay. And may I ask how much was that donation for?

8 **A.** I do not remember. But if I am making a guess, I think it  
9 was a thousand.

10 **Q.** Is a thousand dollar donation a large donation to your  
11 campaign?

12 **A.** I have had larger. But I mean it is a considerable  
13 donation.

14 **Q.** Considerable amount.

15 Ms. Clark, are you aware of -- are you aware that Fair  
16 Fight Action, the organization that made a donation to your  
17 campaign, has entered into a joint litigation and common  
18 interest agreement with one of the plaintiffs in this case?

19 **A.** I'm not aware.

20 **Q.** That is news to you?

21 **A.** Yes.

22 MR. LAKE: Your Honor, I have here what we have  
23 marked here as Defendants' Exhibit 2.

24 May I approach the witness?

25 THE COURT: Yes.



1 **Q.** (BY MR. LAKE) Ms. Clark, I have handed you what we have  
2 marked as Defendants' Exhibit Number 2. I understand from your  
3 testimony earlier you have never seen this document; is that  
4 correct?

5 **A.** Correct.

6 **Q.** Okay. If you will turn to the second page of this  
7 document, could you tell me according to this document the date  
8 that is listed for the signatures attached to it.

9 **A.** January 7, 2019.

10 **Q.** Okay. And am I correct that this document reflects an  
11 agreement between, as it states here, Fair Fight Action and  
12 Care in Action and the counsel for Coalition for Good  
13 Governance; is that correct?

14 **A.** Yes.

15 **Q.** Okay. And the January 7th date on this agreement is  
16 contemporaneous with or close to the time that you received the  
17 donation or your campaign received the donation from Fair Fight  
18 Action; is that correct?

19 **A.** I did receive a donation in January of 2019.

20 **Q.** I'm sorry. 2000?

21 **A.** 2019.

22 **Q.** 2019. I'm sorry. And do you -- do you follow Fair Fight  
23 Action's social media presence, or are you on any of their  
24 mailing lists or anything to that effect?

25 **A.** I barely -- if it comes up on my social media, then I see

1 things if it pops up I guess if I am one of their targets. But  
2 I don't know that I actually follow, like, their page or  
3 anything.

4 **Q.** Do you subscribe or follow Fair Fight Action on Twitter?

5 **A.** I don't think so.

6 **Q.** Okay. Instagram?

7 **A.** I also don't think so. But if I'm being honest, I usually  
8 have someone do my social media for me. So I do not know.

9 **Q.** That sounds good.

10 I should say: Leading up to your testimony today, were  
11 you aware of any social media or mailings or did you receive  
12 any communications from Fair Fight Action with relation to this  
13 case?

14 **A.** No.

15 **Q.** Okay. So if Fair Fight Action sent a tweet or whatever it  
16 is called on an Instagram -- I think it is called an  
17 Instagram -- you did not receive that message?

18 **A.** No.

19 MR. LAKE: Your Honor, may I approach the witness?

20 THE COURT: Yes.

21 MR. CROSS: What is the relevance of all this? It  
22 has been going on for a while.

23 MR. LAKE: Your Honor, I am almost done. But I do  
24 believe that this is relevant to the extent that it goes to the  
25 witness' bias or potential for bias as she has received

1 financial -- or her campaign has received money from an  
2 organization that has entered into a legal agreement, a common  
3 interest joint litigation agreement, with one of the  
4 plaintiffs.

5 THE COURT: Well, you know, I'm going to let you  
6 explore it. But I will say that -- I mean, is there any reason  
7 that you have to believe that she didn't, in fact, back in  
8 2018 -- none of this goes to whether or not she had this  
9 experience in 2018 and that seems to be --

10 MR. POWERS: Your Honor -- sorry.

11 THE COURT: -- the gist of her testimony.

12 MR. LAKE: I understand, Your Honor. But the  
13 testimony I believe did go beyond just her experience from July  
14 of last year. She did testify to further actions that she had  
15 taken in the legislature with relation to voting and, you know,  
16 promotion of those efforts. I understand. I will be brief and  
17 wrap this up.

18 THE COURT: Be brief. Because I really think the  
19 gist of it, which we could have also had simply by virtue of  
20 her affidavit, is that she had this experience in 2018.

21 MR. CROSS: Your Honor, could I clarify one thing?  
22 Just so I understand, is the Secretary of State's office  
23 suggesting to Your Honor that a state representative of Georgia  
24 has been less than honest on the stand? Is that literally what  
25 we just heard? Because it sounded like it.

1 MR. LAKE: I don't believe that is a proper  
2 objection, Your Honor.

3 THE COURT: All right. I want to just -- ask your  
4 question, and then we're going to be through, whatever the last  
5 question is.

6 MR. LAKE: Your Honor, I'll move on entirely. I'll  
7 move on entirely, Your Honor.

8 **Q. (BY MR. LAKE)** Let me just ask with regard to the November  
9 election, which I believe you testified earlier, that you did  
10 not receive -- you did not have any problems in your experience  
11 in that election; correct?

12 **A.** Correct.

13 **Q.** And I am correct that you indeed won your race in November  
14 of 2018; correct?

15 **A.** Correct.

16 **Q.** Do you have any reservations or doubts based on your  
17 previous experience in July or in your research in anything  
18 that your election was in any way tainted or a product of  
19 either computer malfunction or technical issues?

20 **A.** I will say that I am hopeful that my ballot was cast  
21 properly and everyone's ballots were cast properly. I am not  
22 certain that they were.

23 **Q.** Okay. So sitting here today, you have some reservation  
24 about even your own election?

25 **A.** I have reservations about the November 2018 elections in

1 general, yes.

2 MR. LAKE: I have no further questions, Your Honor.

3 MR. POWERS: No further questions.

4 THE COURT: Did Mr. Day ever get back to you?

5 THE WITNESS: Yes.

6 THE COURT: Did they explain to you what the problem  
7 was or if it was --

8 THE WITNESS: They did not know what the problem was.  
9 They tried to come up with some explanations. But the  
10 overlying answer was we don't know what happened.

11 THE COURT: All right. Thank you very much.

12 Is this witness excused?

13 MR. POWERS: Yes, Your Honor.

14 THE COURT: Thank you very much.

15 MR. BROWN: Your Honor, the plaintiffs would call  
16 Sara LeClerc.

17 COURTROOM DEPUTY CLERK: Please raise your right  
18 hand.

19 **(Witness sworn)**

20 COURTROOM DEPUTY CLERK: Please have a seat. Loudly  
21 and clearly state your full name, and spell your last name for  
22 the record.

23 THE WITNESS: My name is Sara LeClerc. The last name  
24 is L-E, capital, C-L-E-R-C. And Sara is S-A-R-A.

25 Whereupon,

1 SARA LECLERC,

2 after having been first duly sworn, testified as follows:

3 DIRECT EXAMINATION

4 BY MR. BROWN:

5 **Q.** Sara, good afternoon. What do you do for a living?

6 **A.** I'm an attorney.

7 **Q.** And who do you work for?

8 **A.** I work for myself. I have my own firm.

9 **Q.** And what was your role, if any, in the November 2018  
10 election?

11 **A.** I volunteered to be a poll watcher with the Georgia  
12 Democrats.

13 **Q.** And what was your understanding of what a poll watcher was  
14 supposed to do?

15 **A.** First to observe to ensure that no eligible voter was  
16 turned away from casting their ballot. Also to help resolve  
17 any issues in partnership with the poll manager and other poll  
18 workers. And also to document and report anything that seemed  
19 out of the ordinary or didn't follow proper procedures.

20 **Q.** And on election day on November 2018, what was the name of  
21 the precinct where you worked as a poll watcher?

22 **A.** I was poll watching at Allen Temple AME Church in Atlanta,  
23 Fulton County.

24 **Q.** And after election day voting started, do you recall a  
25 voter voting on the electronic machine asking for help?

1     **A.**    Yes, I do.

2     **Q.**    Can you explain that to the Court, please?

3     **A.**    Yes.  There was a rather elderly woman voter who had been  
4    walking with a cane.  She was at one of the voting stations and  
5    kind of signaled around the area that she was looking for help.  
6    So the poll manager, Angela, went over and started assisting  
7    her at the voting machine.

8     **Q.**    And then what happened after that?

9     **A.**    Well, the manager --

10            MS. RINGER:  Objection, your Honor.  Hearsay.

11            MR. BROWN:  I said what happened after that.

12            THE COURT:  You can describe what happened -- I'm not  
13    going to consider the statement for the truth of the statement.  
14    But try to just explain what happened.

15     **A.**    Sure.  So the manager was at the voting station or voting  
16    machine with the voter for a little while.  And then the  
17    manager went back to her -- her own desk, and the voter stayed  
18    at the machine.

19     **Q.**    **(BY MR. BROWN)**  Did you speak to the manager about what  
20    was happening?

21     **A.**    Not at that time, no.

22     **Q.**    Did you speak to the manager later?

23     **A.**    I did.  Because the manager had gone back a second time to  
24    the voting machine while the voter was still there.  They were  
25    together for a while.  After the voter left the voting machine,

1 the manager started shutting down that machine and closing it  
2 up to take it out of use.

3 **Q.** Did you -- what did the manager tell you about what  
4 happened at that voting machine?

5 MS. RINGER: Objection, Your Honor. Still hearsay.

6 MR. BROWN: Your Honor, that is a statement by an  
7 opposing party. He is a Fulton County agent working within the  
8 scope of his responsibility. And therefore it is not hearsay.

9 THE COURT: You may proceed.

10 **A.** The manager told me that the -- I'm sorry -- that the  
11 voter had -- when they got to the review screen of the page  
12 that two of the races had not had any selection, including the  
13 lieutenant governor and then one other race down the ballot.

14 So the manager had asked the voter if she had intended to  
15 vote, which she had intended to. So the manager pointed on the  
16 screen to the area for the lieutenant governor race so that the  
17 voter could go back and complete her selection for that race.

18 The voter -- the manager told me that she had seen the  
19 voter put her finger on the screen to go back to the lieutenant  
20 governor race. But instead of the page going back there, the  
21 screen showed that the whole ballot had been cast and submitted  
22 to -- submitted.

23 **Q. (BY MR. BROWN)** So the ballot just self-cast before the  
24 voter was done?

25 **A.** Exactly. It had self-cast. The area where the lieutenant



1 governor race touched on the screen was pretty far away from  
2 where the submit ballot had been. So the manager said the  
3 voter had definitely not pressed to submit the ballot.

4 **Q.** Did the poll manager take that machine out of service?

5 **A.** Yes, she did take it out of service right then.

6 **Q.** Did that machine ever get back into service?

7 **A.** Yes. The manager did put it back into service a little  
8 later that afternoon.

9 **Q.** And what were the circumstances that might have required  
10 that machine being put back into service?

11 **A.** Well, the lines were getting very --

12 MS. RINGER: That calls for speculation.

13 MR. LAKE: Objection.

14 THE COURT: Well, she can testify regarding her  
15 observations. And let me just say we do not have a jury here.  
16 And so everyone can object all you want. But you'll be using  
17 up the time. But I think this is just her observations. So if  
18 there is something that is really speculative, you can jump up.  
19 But I also am capable of seeing it. Thank you.

20 **A.** At that time, the lines had grown really long because both  
21 of the only two machines where voters could check in -- both of  
22 them had gone down. And so the lines were getting really long,  
23 backed up. And that is the time that the manager put that  
24 particular voting machine back into service.

25 MR. BROWN: That is all I have. Thank you.

## CROSS-EXAMINATION

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BY MR. LAKE:

**Q.** Good afternoon, Ms. LeClerc. Am I pronouncing that correctly?

**A.** Yes. LeClerc.

**Q.** I just wanted to clarify your testimony. When you stated that the manager told you that there was an issue with the machine, you did not observe the machine; is that correct?

**A.** Only from a distance. I couldn't see the screen of the machine itself.

**Q.** So you personally saw no malfunction on the machine?

**A.** No.

**Q.** Okay. And --

**A.** I was too far away to see anything like that.

**Q.** Okay. And you mentioned earlier that you had signed up to be a poll watcher with the Georgia Democrats; is that correct?

**A.** Yes.

**Q.** Did you receive any training in anticipation of your service?

**A.** Yes, I did.

**Q.** Okay. And what did that training entail?

**A.** One evening I went down to the Georgia Democrats headquarters, I believe is where it was. And they had, I think it was, about a two-hour presentation on what our duties were and all sorts of rules behind voting.

1           And then they also emailed us the presentation that they  
2 had given, the PowerPoint, as well as some other guidelines  
3 and -- for example, I was in Fulton County. So I had the  
4 Fulton County rules for poll watchers.

5 **Q.** Did the training or the rules contain any information or  
6 training in terms of technical aspects of voting?

7 **A.** I'm not sure exactly what you mean by that.

8 **Q.** Did it include any training or education in the operation  
9 of a DRE or a voting machine?

10 **A.** Not -- I would say probably not technical but more just  
11 what is supposed to happen, you know, what a person would  
12 observe. Not like the computer functions.

13 **Q.** So in your poll watching, you were not looking for -- to  
14 observe any technical malfunctions or operational issues with  
15 the machines themselves; is that correct?

16 **A.** Only to report if something looked out of the ordinary. I  
17 wouldn't be detecting an actual technical malfunction.

18           MR. LAKE: I understand.

19           Thank you, Your Honor. I have no other questions.

20           THE COURT: Thank you.

21           MR. BROWN: No further questions.

22           MS. RINGER: No further questions.

23           MR. BROWN: May the witness be excused?

24           THE COURT: Yes. Thank you very much.

25           THE WITNESS: Thank you.

1 MR. POWERS: Your Honor, the plaintiffs call voter  
2 Kathy Polattie to the stand. Polattie, P-O-L-A-T-T-I-E.

3 COURTROOM DEPUTY CLERK: Please raise your right  
4 hand.

5 **(Witness sworn)**

6 COURTROOM DEPUTY CLERK: Please have a seat. Loudly  
7 and clearly state your full name, and spell your last name for  
8 the record.

9 THE WITNESS: My name is Kathy Polattie,  
10 P-O-L-A-T-T-I-E.

11 Whereupon,

12 KATHY POLATTIE,

13 after having been first duly sworn, testified as follows:

14 DIRECT EXAMINATION

15 BY MR. POWERS:

16 **Q.** Good afternoon, Ms. Polattie. Could you please tell the  
17 Court where you live, Ms. Polattie.

18 **A.** Yes. I live in Midland, Georgia, which is ten miles from  
19 Columbus, Georgia. It is Muscogee County and about 100 miles  
20 from Atlanta.

21 **Q.** Thank you for taking the time to travel here and testify  
22 today.

23 Ms. Polattie, are you registered to vote in Georgia?

24 **A.** Yes, I am.

25 **Q.** And, Ms. Polattie, did you attempt to vote in the

1 November 2018 election?

2 **A.** Yes, I did. I did vote.

3 **Q.** And were there any particular contests you were excited  
4 about voting in during the November 2018 election cycle?

5 **A.** Yes. I was excited about Stacey Abrams. And I wanted to  
6 vote for Sarah Amico, John Barrow for Secretary of State. And  
7 Sanford Bishop, I wanted him to continue to be our -- our  
8 representative.

9 **Q.** And had you done any research or preparation into those  
10 candidates before you went to vote?

11 **A.** Yes. I went to hear Stacey Abrams and Stacey Evans debate  
12 at Columbus State University. I already knew Sanford Bishop's  
13 record. And I did look at the websites of John Barrow and  
14 Sarah Amico to make sure that I agreed with them.

15 **Q.** And, Ms. Polattie, when did you vote during the  
16 November 2018 election cycle?

17 **A.** Okay. I early voted on October the 19th, 2018, at the  
18 Citizen Center in Columbus, Georgia. I went there with my -- I  
19 took my mother-in-law with me so she could turn in her absentee  
20 ballot. She does not feel comfortable voting on a -- voting on  
21 a machine. She is 83 years old.

22 **Q.** And can you please describe your experience voting on that  
23 day?

24 **A.** While voting, I was a few screens in and it hit me all of  
25 a sudden that I had not seen Sarah Amico's name. And I --

1 excuse me -- I kind of in a -- kind of in a panic, I wondered  
2 if I had missed her. But I truly did not feel like I had  
3 missed her because I had been very careful. I was taking my  
4 time. And I did not feel like I had missed her.

5 So I looked down to see if there was a back button or  
6 previous button or an arrow. And there was not. My only  
7 option was to go forward. So I thought at that point did I --  
8 if I couldn't go back did I need to get a poll worker to help  
9 me. I absolutely did not want to do that.

10 Then I thought, well, maybe -- maybe Sarah Amico would be  
11 on the next screen. Maybe she wasn't where I assumed that she  
12 would be right after the governor. And also I remembered that  
13 there was a summary page at the end of the voting process, and  
14 I hoped that I was right. So I kept on voting.

15 When I got to the summary page, I saw that I had not voted  
16 for Sarah Amico. So I proceeded to mark that box. I checked  
17 over my candidates. And I cast my ballot.

18 **Q.** Ms. Polattie, just to make sure I understand you, you are  
19 saying -- is it true that when you went through your choices  
20 for the first time you did not see the lieutenant governor's  
21 race on the ballot?

22 **A.** Yeah. Right. I did not see her.

23 **Q.** And is it also true that when you were going through your  
24 choices through the first time you did not see a back button  
25 that would allow you to go back and look at previous screens?

1 **A.** Right. That surprised me and frustrated me.

2 **Q.** Ms. Polattie, do you think there's an alternative  
3 explanation for why you didn't see the lieutenant governor's  
4 race, such as a loose piece of clothing touching the screen or  
5 perhaps accidentally you tapped the screen twice?

6 **A.** No. You know, I know the difference between pressing the  
7 screen and tapping. And also I had on what I usually wear. No  
8 dangling jewelry or sleeves to get in the way.

9 **Q.** Ms. Polattie, what method of voting do you plan on using  
10 in the future elections?

11 **A.** Well, I like technology. But I think I might take  
12 advantage of the absentee ballot in the future until things get  
13 straightened out.

14 MR. POWERS: Thank you. No further questions.

15 CROSS-EXAMINATION

16 BY MR. LAKE:

17 **Q.** Good afternoon, Ms. Polattie. Am I pronouncing that  
18 correctly?

19 **A.** Yes.

20 **Q.** My name is Brian Lake. I'm with the defendants. I just  
21 wanted to clarify a couple of things about your testimony.

22 One, am I correct that you did ultimately vote in the  
23 lieutenant governor's race in November of 2018?

24 **A.** I did.

25 **Q.** And did you -- you mentioned that you did not want to

1 contact a poll worker when you experienced troubles at the  
2 polls. Could you tell me why.

3 **A.** I do not think that they are there to interfere with my  
4 voting process. I don't think we're supposed to ask them for  
5 help. That has always been my thought. And, you know, as I  
6 stood there and I was thinking what was I going to have to -- I  
7 would feel stupid. I know how to vote. I don't -- I should be  
8 able to do this.

9 **Q.** If the lieutenant governor's race had not appeared on the  
10 review screen and allowed you to vote, do you think you would  
11 have contacted a poll worker?

12 **A.** Yes. At that point, I would have had to do that.

13 **Q.** But when you saw the race on the review screen and you  
14 were able to vote, that was sufficient for you?

15 **A.** Yes.

16 **Q.** After the -- after you voted, did you contact anyone about  
17 your experience voting or any troubles you experienced?

18 **A.** No. I felt like the problem resolved itself. And I did  
19 not contact anyone. I did not say anything to anybody. I just  
20 didn't give it another thought until -- until I heard about the  
21 undervotes and I made the connection.

22 **Q.** And when was that?

23 **A.** I believe it was in November of 2018.

24 **Q.** And who did you contact, if anyone, at that point about  
25 your experience?



1 **A.** I did not contact anyone. I saw an article posted on  
2 Twitter. And I replied to it. And Ms. Marks messaged me, and  
3 we had -- she asked me what happened.

4 **Q.** Okay. And is Ms. Marks Ms. Marilyn Marks; is that  
5 correct?

6 **A.** Uh-huh (affirmative).

7 **Q.** And is that -- for lack of a better phrase, is that how  
8 you came to submit the declaration?

9 **A.** Yes. Yes. She asked me would I mind giving -- doing an  
10 affidavit.

11 **Q.** Okay. And did you prepare that affidavit?

12 **A.** Yes. I told her what happened. She said that they would  
13 type it up for me after I told her what happened.

14 **Q.** Okay. And you reviewed that?

15 **A.** Oh, gosh, yeah.

16 **Q.** And that affidavit, what was the -- did you understand  
17 what the intent or the intended use of that affidavit was?

18 **A.** That she would -- she would use it in her legal work or  
19 that she -- I think I read about that she was -- that there was  
20 a lawsuit at the time about problems with the machines and that  
21 she would use it in that.

22 **Q.** Okay. And were you -- did she contact you again or did  
23 you hear from her again with regard to this lawsuit?

24 **A.** No.

25 MR. POWERS: Objection. Relevance. What are we

1 doing?

2 THE COURT: Overruled.

3 MR. LAKE: That is all the questions I have, Your  
4 Honor. Thank you very much.

5 THE COURT: All right. May this witness be excused?

6 MR. BROWN: Yes, Your Honor.

7 MR. POWERS: The witness may be excused. Thank you.

8 MR. CROSS: Should we keep going, Your Honor?

9 THE COURT: Let's take a five-minute break. And who  
10 is your next witness?

11 MR. CROSS: It is going to be Ms. Payton, the  
12 security expert.

13 THE COURT: All right. Is Ms. Payton around?

14 MR. TYSON: She is, Your Honor.

15 THE COURT: Okay. All right.

16 MR. LAKE: Your Honor, just as one housekeeping  
17 issue, I don't believe we have actually tendered any of our  
18 exhibits.

19 THE COURT: I have been noticing this. You withdrew  
20 Defendants' Exhibit 3; right?

21 MR. LAKE: Yes, that is correct.

22 THE COURT: Are there objections to any of the  
23 exhibits? At the end of the day, you can all go through all of  
24 them. But are there any objections?

25 MR. BROWN: No, Your Honor.

1 MR. CROSS: No, Your Honor.

2 That reminds me. I understand that Your Honor has or  
3 at least Mr. Martin collected redacted versions of the risk  
4 assessments that we used earlier. We should probably mark  
5 those as separate exhibits because they are different in that  
6 respect. We can deal with that later. But I just wanted to  
7 make sure --

8 THE COURT: All right. Well, y'all need to sort it  
9 out at the end of the day. And all of the exhibits offered  
10 except for the last one are admitted.

11 MR. CROSS: Thank you, Your Honor.

12 THE COURT: I wish I had the numbers to reference.

13 MS. ANDERSON: I believe it is just 1 and 2.

14 THE COURT: Defendants' 1 and 2. And how many are  
15 there for --

16 MS. CHAPPLE: 1 through 6.

17 MR. CROSS: We have 6 so far.

18 THE COURT: All right. 1 through 6.

19 All right. We'll start again at 3:45.

20 MR. CROSS: Thank you, Your Honor.

21 MR. RUSSO: Thank you, Your Honor.

22 COURTROOM SECURITY OFFICER: All rise.

23 **(A brief break was taken at 3:37 P.M.)**

24 THE COURT: Please have a seat. All right.

25 MR. RUSSO: Your Honor, we have a quick housekeeping

1 item.

2 THE COURT: All right. Go ahead.

3 MR. RUSSO: The plaintiffs look like they have about  
4 five witnesses left to call. Most of them are our experts. We  
5 have three elections division -- excuse me -- county elections  
6 officials left to go on our side still, one being from Chatham  
7 County, one from Madison.

8 If we're not going to -- we kind of talked about this  
9 already. It doesn't look like, depending on how long you want  
10 to go tonight, we'll get to those three. Could we let them go?

11 THE COURT: It seems reasonable.

12 MR. RUSSO: Thank you, Your Honor.

13 THE COURT: They will be available to you tomorrow?

14 MR. RUSSO: Yes.

15 MR. CROSS: Your Honor, the plaintiffs call their  
16 next witness, Theresa Payton.

17 COURTROOM DEPUTY CLERK: Please stand and raise your  
18 right hand.

19 **(Witness sworn)**

20 COURTROOM DEPUTY CLERK: Please have a seat. Loudly  
21 and clearly state your full name, and spell your last name for  
22 the record, please.

23 THE WITNESS: Theresa Payton.

24 T-H-E-R-E-S-A P-A-Y-T-O-N.

25 Whereupon,

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THERESA PAYTON,

after having been first duly sworn, testified as follows:

CROSS-EXAMINATION

BY MR. CROSS:

**Q.** Good afternoon, Ms. Payton.

**A.** Good afternoon.

**Q.** Do you consider yourself an expert on election security?

**A.** Yes, Your Honor, I do, on certain aspects of election security.

**Q.** Specifically involving cybersecurity in elections?

**A.** Yes.

**Q.** And --

THE COURT: What aspects do you not feel like you're an expert on?

THE WITNESS: Well, it will depend as we go into sort of the context of different parts of it. But as it relates to cybersecurity, pretty much any hardware or software and sort of oversight of a process, we look at that at Fortalice Solutions, whether it is election security or any other process.

**Q. (BY MR. CROSS)** Ms. Payton, as someone with some expertise in election security, your biggest worry and concern going into the midterm elections of last year was that citizens would not trust election results and that the election process would lose legitimacy; right?

**A.** That is correct. I'm actually working on a book that I've

1 been working on the better part of two years around -- I call  
2 it sort of the security of the ecosystem, everything from  
3 campaigns, to the party headquarters, to how the different  
4 states run things in the elections, as well as the manipulation  
5 that occurred on social media.

6 **Q.** And going into the midterm elections of last year, you had  
7 grave concerns about election interference; correct?

8 **A.** I did, yes. Still do.

9 **Q.** In fact, going into the midterms of last year, you believe  
10 that one thing that we can be sure of is that a U.S. election  
11 will be hacked, no doubt about it; right?

12 **A.** Yes. Now, as far as kind of --

13 THE WITNESS: If you don't mind, Your Honor, I would  
14 like to give a little bit more context if you want it or I can  
15 give more context later.

16 MR. CROSS: Since it is on my time, I would rather  
17 her just rely on redirect.

18 THE COURT: That is fine.

19 THE WITNESS: Sure.

20 MR. CROSS: Thank you, Your Honor.

21 **Q. (BY MR. CROSS)** Did you watch any of the Congressional  
22 hearings with Robert Mueller?

23 **A.** I listened to it first thing in the morning on the way in  
24 to work. You mean the one that occurred this week, sir?

25 **Q.** Yesterday.

1 **A.** Yes. Then I had a very busy workday, so I didn't get to  
2 watch it.

3 **Q.** But you are aware that he described again yesterday as he  
4 has before that interference in U.S. elections by Russia and  
5 others he identifies as a grave concern that all Americans  
6 should be concerned about; right?

7 **A.** Absolutely.

8 **Q.** Of course, you agree?

9 **A.** I do agree.

10 **Q.** You are aware that he reiterated just yesterday that  
11 Russia is actively trying to hack U.S. elections as we speak?  
12 You are aware of that; right?

13 **A.** I did not hear him say that. But I know that that is the  
14 position of the FBI, and it is the position of the  
15 cybersecurity community.

16 **Q.** And Georgia elections you understand are still conducted  
17 on electronic machines, specifically DREs? You are aware of  
18 that?

19 **A.** Yes. As I understand it, yes.

20 **Q.** You agree that no electronic voting system is impervious  
21 to interference?

22 **A.** Yes. No paper process is impervious to fraud and no  
23 electronic -- nothing that is electronic is unhackable.  
24 Everything is hackable.

25 And I say that coming from my banking background. You

1 have a paper process. It is fraught with fraud. You have a  
2 technology process. It is going to be -- it is hackable.

3 **Q.** Well, you actually anticipated where I was going in your  
4 discussion of paper. But you do agree that paper ballots are  
5 the best fraud prevention though; right?

6 **A.** No. I mean --

7 **Q.** Didn't you write an article for the Hill on December 3rd,  
8 2016, with the title Paper Ballot, the Best Fraud Prevention?  
9 Did you write that?

10 **A.** Yes. As a backup, yes.

11 **Q.** Thank you. You understand that in the voting machines in  
12 Georgia there is no paper backup for those machines? There is  
13 no paper ballot, I should say, for what is used in the state  
14 right now; right?

15 **A.** Can you describe what you mean? Because I know it prints  
16 out receipts.

17 **Q.** Right.

18 **A.** So it has a running print. So what do you mean, sir?

19 **Q.** The printout of the receipt, all it is is an indication of  
20 what is stored in the memory of the machine; correct?

21 **A.** Correct.

22 **Q.** So if the memory of the machine -- if the count is wrong  
23 there, then the count will also be wrong on the paper ticker  
24 that is printed out; right?

25 **A.** As I understand the architecture, yes.



1 Q. In fact, you have praised Wisconsin for the fact that it  
2 uses paper ballots; right?

3 A. Yes. In the op-ed, that is correct.

4 Q. In the Georgia system, you mentioned a running print.  
5 There is not actually a running print? There is just the  
6 single total at the end; right?

7 A. That is -- as I understand it from the demonstrations I  
8 have seen, yes.

9 Q. Now, you agree that suppressing even a relatively small  
10 handful of votes, particularly in a local election with a small  
11 number of voters, could be enough to change the outcome of an  
12 election; right?

13 A. It is possible. You certainly don't want a single vote  
14 suppressed.

15 Q. And you are aware of cyber attacks in 2018 on the  
16 infrastructure that could actually suppress voter turnout in  
17 the U.S.; right?

18 A. There is the possibility.

19 Are you referring to Illinois or a specific event or just  
20 in general?

21 Q. Well, you're aware that in 2017 and 2018 security  
22 researchers discovered that Russian hackers were probing the  
23 U.S. electrical grid?

24 A. That is correct. Department of Homeland Security and  
25 others went out to talk to the states that had those probes.

1 Q. And the Department of Homeland Security actually found  
2 that the Russians got to the point where they could have thrown  
3 switches, meaning they could have actually turned power on and  
4 off; right?

5 A. That is what is reported in the unclassified reports.

6 Q. Obviously an election that relies on electrical machines,  
7 like DREs or BMDs even, if the electricity goes down the  
8 election goes down for however long the electricity is out;  
9 right?

10 A. Well, I'm not aware of what the backup manual processes  
11 are. A lot of organizations -- for example, if you have a cash  
12 register and the electricity goes down, they go to a manual  
13 process. So I guess it is going to depend on the precinct.

14 Q. And the manual process in an election would be a paper  
15 ballot; right?

16 A. Yes.

17 Q. So just so we understand, the risk of tampering or  
18 interfering with elections that rely on electronic voting  
19 machines, you don't actually have to access the machines or the  
20 election system at all? You could do it, for example, by  
21 attacking the power grid; right?

22 A. Yeah. I mean, I think, you know, from an ecosystem  
23 standpoint, what you could be looking at is you've got voter  
24 websites and making sure they give the right information.  
25 You've got the voter registration databases making sure that

1 people are registered to vote. I mean, you have a big  
2 ecosystem with a lot of different potential points of failure.

3 **Q.** One of the concerns you have raised is states that are  
4 still using old infrastructure -- you have identified that as a  
5 serious vulnerability with elections; right?

6 **A.** Absolutely.

7 **Q.** And nowhere in the declaration did you -- in this case did  
8 you offer any opinion that the current infrastructure in  
9 Georgia is reliable and secure? You don't offer that opinion  
10 in your declaration; right?

11 **A.** I'm a little confused. I'm sorry. What do you mean by I  
12 don't offer an opinion? We have the redacted risk assessments  
13 where we have done assessments of the infrastructure.

14 **Q.** We're going to talk about that.

15 **A.** Okay.

16 **Q.** Actually, you were here earlier for Mr. Beaver's  
17 testimony; right?

18 **A.** No, I was not. I came in afterwards.

19 **Q.** Your risk assessments, which we are going to turn to in a  
20 moment, those included the Secretary of State's network  
21 including what you refer to as election-related networks;  
22 right?

23 **A.** Yes.

24 **Q.** And, again, nowhere in the declaration that you submitted  
25 to the Court do you offer an opinion that the current

1 infrastructure that is used for the election system in the  
2 State of Georgia is secure and reliable? That is not in your  
3 declaration; correct?

4 **A.** The challenge I think that you have with what you put in a  
5 declaration is no system is 100 percent secure.

6 **Q.** Ms. Payton, just come back to my question. If you need  
7 the declaration, I'm happy to hand it to you. My question is  
8 straightforward.

9 **A.** I would love to look at it just to make sure I give you an  
10 accurate representation.

11 MR. CROSS: May I approach, Your Honor?

12 THE COURT: Yes.

13 MR. CROSS: This will be -- I don't think we need to  
14 mark it. Your Honor has it.

15 THE COURT: Right.

16 **Q. (BY MR. CROSS)** Review it if you need to. But I will tell  
17 you there does not appear to be any stated opinion in there  
18 that the current election system, the infrastructure of it, is  
19 reliable and secure in the State of Georgia. Tell me if I'm  
20 wrong.

21 **A.** Which section are you referring to?

22 **Q.** Anywhere. Anywhere.

23 **A.** So this declaration talks about the work that we have  
24 conducted on behalf of Secretary of State Georgia, including  
25 the risk assessment of PCC, the vendor.

1 **Q.** Ms. Payton, do you not understand my question?

2 **A.** I'm just trying to make sure -- I'm under oath. I want to  
3 answer you honestly.

4 THE COURT: Well, just take your time to review it so  
5 that you can answer him one way or the other.

6 **A.** Sure. So under Paragraph 6, I say, in the November 2018  
7 reassessment, Fortalice determined that Secretary of State --  
8 we abbreviate it SOS -- was documenting many operations  
9 correctly and had a proper mindset towards the iterative  
10 improvement of cybersecurity. So that refers to the National  
11 Institute of Standards and Guidelines, the NIST standard.  
12 During the on network red team penetration test, we were  
13 stymied by certain controls already in place. So that talks  
14 about the improvements that they have made.

15 For instance, it is common practice for a red team to  
16 access networks as part of the rules of engagement by guessing  
17 passwords. In the case of the Secretary of State, we were  
18 unable to access the network through password guessing. That  
19 was something we had observed as being a challenge earlier.

20 So I actually walk through to give sort of more  
21 granularity around our assessment of how they are doing.

22 **Q. (BY MR. CROSS)** Ms. Payton, let me try my question again  
23 because it is important.

24 I understand you provide a variety of findings on specific  
25 things you did, and we're going to talk about what you did and

1 didn't do.

2 Here is my question: Nowhere in the sworn testimony you  
3 have provided to this Court do you offer an ultimate opinion  
4 that the current election system, GEMS, DREs, memory cards,  
5 scanners, voter registration -- whatever you want to include,  
6 but it includes those -- that it is currently secure and  
7 reliable? That opinion does not appear in your declaration; am  
8 I correct?

9 **A.** That is correct. And I would never say any system is  
10 100 percent secure.

11 **Q.** That wasn't my question.

12 **A.** Okay.

13 **Q.** I didn't say anything about 100 percent. Do you  
14 understand what I'm asking you?

15 **A.** Yes.

16 **Q.** So you have not offered an opinion that the current  
17 election system at any level in your declaration -- not saying  
18 perfect, not saying guaranteed. There is no opinion stated in  
19 your declaration that it is secure and reliable to any degree?  
20 That opinion does not appear; correct?

21 **A.** That is correct.

22 **Q.** Thank you.

23 Now let's talk about what you did do. Nowhere in your  
24 declaration do you say that you conducted any cybersecurity  
25 assessment of any GEMS servers; right?

1 **A.** That is correct.

2 **Q.** Nowhere in your declaration do you say you conducted any  
3 cybersecurity assessment of any voter registration database  
4 apart from what you did for the risk assessments; right?

5 **A.** That's correct. Also we did more than one risk  
6 assessment. Which ones are --

7 **Q.** Correct. I understand. We'll talk through those.

8 Nowhere in your declaration do you say you conducted any  
9 cybersecurity assessment of any electronic voting equipment  
10 such as DREs; right?

11 **A.** That is correct.

12 **Q.** And the same for memory cards that go into DREs; right?

13 **A.** That is correct.

14 **Q.** Nowhere in your declaration do you say you conducted any  
15 cybersecurity assessment of any AccuVote or election scanners;  
16 right?

17 **A.** That's correct.

18 **Q.** Is your firm capable of that sort of assessment, the type  
19 of looking, examining the reliability of things like DREs and  
20 memory cards and scanners?

21 **A.** If we were engaged to do that, yes.

22 **Q.** So the state did not engage you to do that for your  
23 declaration; correct?

24 **A.** Correct.

25 **Q.** In Paragraph 4 of your declaration, you talk about risk

1 assessments, including whether any attempts to penetrate  
2 systems have been successful. If you need to take a look at  
3 that, go ahead.

4 **A.** Uh-huh (affirmative).

5 **Q.** So we've heard a lot about it. But just to lay the  
6 groundwork, you conducted, your team, three assessments in 2017  
7 and 2018, one in October '17, one in February of '18, and one  
8 in November of '18, for the Secretary of State; right?

9 **A.** That's correct.

10 **Q.** So the assessments you are talking about here in  
11 Paragraph 4 -- you are talking about those assessments in  
12 looking for attempts to penetrate -- to see whether penetrate  
13 systems have been successful; right?

14 **A.** Uh-huh (affirmative). Yes.

15 **Q.** Just so we are clear, that work did not include examining  
16 GEMS servers, DREs, memory cards, scanners; right?

17 **A.** That is correct.

18 **Q.** So I gather you were not engaged to do that analysis for  
19 your declaration either; right?

20 **A.** That is correct.

21 **Q.** Or for those three risk assessments; correct?

22 **A.** Correct.

23 **Q.** In Paragraph 4 of your declaration, you say that the risk  
24 assessments included an attempt to isolate malicious activity;  
25 right?



1 **A.** Yes.

2 **Q.** You did not conduct that analysis for the purpose of those  
3 risk assessments or your declaration with respect to GEMS  
4 servers, DREs, memory cards, or scanners; correct?

5 **A.** That is correct.

6 **Q.** You could have, but you were not engaged to; right?

7 **A.** That is correct. They -- it was a different focus and a  
8 bigger part of the ecosystem.

9 **Q.** In Paragraph 4, you also point out that your risk  
10 assessments included an attempt to determine where any  
11 malicious activity originates; right?

12 **A.** Yes.

13 **Q.** And as with the other, that assessment did not include  
14 GEMS servers, DREs, memory cards, or scanners; right?

15 **A.** Correct.

16 **Q.** You could have done it, but you were not engaged for that;  
17 right?

18 **A.** Correct.

19 **Q.** You participated -- strike that.

20 So let's talk about the October of 2017 assessment, which  
21 is Exhibit 1. If you need a copy of it, let me know.

22 **A.** I would like to have it.

23 **Q.** Sure.

24 **A.** We write hundreds of reports every quarter. So I would  
25 just like to have it.

1 Q. I understand. Are the exhibits still up on the stand? It  
2 may be in front of you. It is Exhibit 1.

3 THE COURT: I think it is going to be larger than  
4 that.

5 COURTROOM DEPUTY CLERK: Mr. Beaver took the exhibits  
6 when he left.

7 MR. LAKE: We may have it. Which one are you looking  
8 for?

9 THE COURT: Exhibit 1.

10 THE WITNESS: I don't have it.

11 THE COURT: He was ready to leave.

12 MR. CROSS: He was eager to get out.

13 Thanks, Bryan.

14 MR. TYSON: How many do we need?

15 MR. CROSS: Just one for her.

16 May I approach, Your Honor?

17 THE COURT: Yes.

18 Are you handing her a redacted one or not redacted?

19 MR. CROSS: This is unredacted just for her so she  
20 has full context.

21 Q. (BY MR. CROSS) So, Ms. Payton, you have what has been  
22 marked as Exhibit 1. And this is a copy of the assessment that  
23 your team prepared in October of 2017 for the Georgia Secretary  
24 of State; right?

25 A. Yes.

1 Q. And your team assessed the Secretary of State IT security  
2 as Tier 2 on the NIST scale? I think you mentioned NIST a  
3 moment ago; right?

4 A. Yes, sir.

5 Q. What that means is that awareness of cybersecurity  
6 risks -- that they had an awareness of cybersecurity risks at  
7 the organizational level but an organization-wide approach to  
8 managing cybersecurity risks had not been established. That is  
9 what that meant; right?

10 A. That is what it means, yes.

11 Q. And your team at that time identified 22 security risks in  
12 the Secretary of State's IT operations; correct?

13 A. We did.

14 Q. And you characterized most of those as significant risks;  
15 right?

16 A. We did.

17 Q. One of those risks was widespread local administration  
18 rights or administrative rights; correct?

19 A. That's correct.

20 Q. And that meant that all Georgia Secretary of State users  
21 who had any sort of log-in credentials were granted  
22 administrative rights on their work stations; right?

23 A. Yes. In some cases, yes.

24 Q. And by administrative rights, that means they have the  
25 ability to, for example, download software; right?

1 **A.** Yes. If they know that is there. Not all users do.

2 **Q.** You understood -- in fact, advised the Secretary of State  
3 that this increased the likelihood that malware or a malicious  
4 actor would be able to successfully compromise a user's work  
5 station through email, web, or removal of media?

6 **A.** Yes. It is one of the first things we look for. This is  
7 actually pretty common to see this vulnerability in private  
8 sector firms and government organizations.

9 **Q.** Ms. Payton, the problem was particularly acute at the  
10 Georgia Secretary of State though because users not only had  
11 administrative rights on their own work stations but they  
12 had -- any individual users had administrative rights on all  
13 work stations? You found that; right?

14 **A.** In some cases, yes.

15 **Q.** This meant that an attacker who took advantage of having  
16 access to the administrative rights could -- with access to a  
17 single work station could quickly access any other work station  
18 and gain administrative rights to spread malware, install  
19 remote access tools, or access sensitive data? That is what  
20 you found; right?

21 **A.** Yes.

22 Do you want some context, or you just want yes or no? I  
23 just want to be respectful of your time.

24 **Q.** I appreciate that. I'm on the clock, and there are a lot  
25 of really smart people across the aisle that will have lots of

1 good questions for you.

2 **A.** Okay.

3 **Q.** Another risk you identified was the lack of two-factor  
4 authentication for remote access; correct?

5 **A.** Yes. That is correct.

6 **Q.** And that meant that the Georgia Secretary of State users  
7 were able to remotely access the Secretary of State network  
8 using only a user name and a password?

9 **A.** At that time, yes.

10 **Q.** And best practice, even as of this time, was to go to at  
11 least a two-factor authentication? You recommended that?

12 **A.** Absolutely. Two-factor whenever you can do it.

13 **Q.** You found that this level of security was insufficient,  
14 particularly given the possibility of fishing attacks or the  
15 theft of credentials; right?

16 **A.** Yes.

17 **Q.** And this particular vulnerability involves remote  
18 access -- people remotely accessing their Secretary of State  
19 accounts outside of the office; correct?

20 **A.** Yes. This is something we very commonly find in many  
21 organizations.

22 **Q.** Did you hear today that the Secretary of State relies on  
23 individuals to design and develop GEMS databases working out of  
24 their personal homes?

25 **A.** I did not. I don't think I was here for that, sir.

1 Q. Have you ever heard that before today?

2 A. I had not.

3 Q. So that is not something you evaluated for your risk --  
4 either of the three risk assessments; right?

5 A. No. That is correct.

6 Q. That is not something you evaluated for your declaration;  
7 correct?

8 A. Correct.

9 Q. Another risk that you identified was the use of nonunique  
10 local administrator passwords; right?

11 A. That is correct.

12 Q. And that risk you advised the Secretary of State could  
13 allow an attacker who compromises one work station on the  
14 network to obtain the local administrator account credentials  
15 and then use those credentials to gain access to any other work  
16 stations or servers; right?

17 A. Yep. Again, this is a common attack vector that we see  
18 attackers take. And it is something we very commonly see as a  
19 deficiency in organizations.

20 Q. You keep saying that. But let's be clear. Nowhere in  
21 your declaration do you state that the risk factors that you  
22 have identified -- that those are present in the election  
23 systems or in any way in the Secretary of State's office of any  
24 other state? That does not appear in your declaration;  
25 correct?

1 **A.** Correct.

2 **Q.** That also does not appear in any of the three assessments  
3 that you did for the Secretary of State; correct?

4 **A.** What doesn't appear?

5 **Q.** That the risk factors that you have identified, that each  
6 of those -- let's just take 2017. That the 22 risk factors you  
7 identified, that you had conducted a similar analysis of a  
8 Secretary of State and found the same risk factors? That does  
9 not appear in your assessments?

10 **A.** That is correct. It does not.

11 **Q.** On the one we were just talking about, nonunique local  
12 administrator passwords, when you did your third assessment,  
13 which completed November 30 of 2018, you found that that one  
14 was still present; right?

15 **A.** We did. It is very common. It is hard to get things  
16 fixed. And sometimes the fixes break other things. So that is  
17 why sometimes it is a little bit more complex than just turning  
18 it on.

19 **Q.** But you did recommend in October of 2017 that they fix  
20 that?

21 **A.** Yes, we did.

22 **Q.** So by the time we got beyond the midterm election of 2018  
23 where 4 million voters in the State of Georgia voted, you found  
24 that that assessment -- that risk was still present; correct?

25 **A.** That's correct. What I can tell you is these roadmaps

1 when we -- first of all, we get paid to find things. That is  
2 our job. But secondly --

3 **Q.** Ms. Payton, I promise you are going to get an opportunity  
4 to explain from them.

5 **A.** Okay.

6 **Q.** So we have the timing right, the 22 risks -- your team  
7 identified these 22 risks and successfully even penetrated the  
8 Georgia systems as reflected in your October 2017 report;  
9 right?

10 **A.** Yes.

11 **Q.** And this occurred after it was widely publicly known that  
12 Russia had attempted to interfere in the 2016 elections; right?

13 **A.** It was becoming more publicly known at that point. Yes.

14 **Q.** So then for the February 2018 assessment, that one focused  
15 on the PCC technology which at that time owned and operated the  
16 voter registration database; right?

17 **A.** Yes. That is correct.

18 **Q.** And they continued to own and operate the registration  
19 database through the midterm elections of last year; right?

20 **A.** Yes.

21 **Q.** In fact, we heard today I think that only recently until  
22 July of this year has there been efforts undertaken to switch  
23 that and to give some more authority to the Secretary of  
24 State's office? Had you heard that?

25 **A.** I was not in the room for that.



1 Q. In the February 2018 assessment, you identified 15  
2 security risks with PCC involving the voter registration  
3 databases; right?

4 A. I believe that is correct. I'm trying to flip -- do  
5 you -- do you know where it is in here? I just want to make  
6 sure.

7 Q. I think it is right in the front of the February  
8 assessment. I think it is on the first page.

9 A. This is a thick document. So hold on a second. Let me --

10 Q. Do you have the February one up there, or do you need that  
11 one too?

12 MR. TYSON: We have the February one.

13 THE WITNESS: Yeah. I just have the 2017.

14 MR. CROSS: May I approach?

15 THE COURT: Yes.

16 A. What page are you on?

17 Q. **(BY MR. CROSS)** I think it is the first. Let's see. If  
18 you look at the second paragraph, you see it reads --

19 A. On Page 3?

20 Q. First substantive page, Page 3. Are you there?

21 A. Yes.

22 Q. Thank you. It reads, Cloudburst Security suggests  
23 remediating the 15 identified security risks included in this  
24 report. Do you see that?

25 A. Yes, I do.

1 Q. So does that refresh your recollection that as of the  
2 February 2018 report your team had identified 15 security risks  
3 with respect to the PCC and the voter registration?

4 A. Yes.

5 Q. As part of the assessment you did, you actually reviewed  
6 the contract between the Secretary of State's office and PCC;  
7 right?

8 A. Yes.

9 Q. And you found that the contract did not contain any  
10 cybersecurity requirements at all; correct?

11 A. Yes. Also common oversight.

12 Q. But, again, there is no indication in this report that the  
13 Secretary of State didn't need to take that seriously because  
14 it just happens all over the country? That doesn't show up in  
15 there; right?

16 A. Just because it happens other places doesn't mean I don't  
17 take it seriously or tell my clients not to.

18 Q. Thank you. That would be the point.

19 You found that PCC was relying on outdated software that  
20 was known to contain critical security vulnerabilities; right?

21 A. Correct.

22 Q. You noted that an attacker with sufficient time and  
23 resources could exploit those vulnerabilities; right?

24 A. Yes.

25 Q. You identified certain remote access vulnerabilities as

1 well; right?

2 **A.** Yes.

3 **Q.** In particular, PCC did not block VPN connections from IP  
4 addresses of known threat sources or foreign countries; right?

5 **A.** Correct.

6 **Q.** And you identified a number of missing critical operating  
7 system patches, unsupported software, and vulnerable  
8 third-party software; right?

9 **A.** Correct.

10 **Q.** Then you did a third assessment that was between September  
11 and November 30 of 2018; right?

12 **A.** Yes.

13 **Q.** That actually --

14 **A.** May I have a copy of that just to be on the safe side?

15 **Q.** Yes, ma'am.

16 **A.** Thanks. Thank you.

17 MR. CROSS: I'm afraid Mr. Tyson is going to hand  
18 me -- he is going to trick me here and give me something I  
19 shouldn't show you.

20 **Q.** **(BY MR. CROSS)** So you have that one in front of you?

21 **A.** Yes, I do.

22 **Q.** And based on the assessment that you did that ended on  
23 November 30 of 2018, you made 20 additional recommendations to  
24 the Secretary of State to improve their cybersecurity; right?

25 **A.** We did.

1 Q. And according to your declaration -- I think it is  
2 Paragraph 7 if you want to grab a copy.

3 Do you have that in front of you?

4 A. Yes.

5 Q. Of the risks outlined in the 2017 report, your team found  
6 that as of the November 30, 2018, reassessment, you say three  
7 risks have been remediated with compensating controls; right?

8 A. Yes.

9 Q. So 3 out of the 22 that you had identified in 2017 had  
10 been remediated as of November 30; right?

11 A. Yes.

12 Q. And another three were in process; right?

13 A. Yes.

14 Q. Meaning that as of November 30, weeks after the midterm  
15 election, your team found that of the 22, 19 had not been  
16 remediated at all; right?

17 A. Correct.

18 Q. And 16 were not even in process; right?

19 A. That's correct.

20 Q. So you weren't here for Mr. Beaver's testimony, I believe  
21 you said?

22 A. No.

23 Q. Mr. Beaver testified that he thought you were wrong about  
24 that. So I'll ask you: Were you careful when you prepared  
25 your declaration?

1 **A.** Yes.

2 **Q.** Were you careful when you conducted these assessments?

3 **A.** Yes.

4 **Q.** Did you adhere to professional standards when you  
5 conducted each of these assessments?

6 **A.** Yes.

7 **Q.** Did you follow the scope of the work as it was laid out  
8 for you?

9 **A.** Yes.

10 **Q.** And were you honest and accurate in the declaration you  
11 provided here?

12 **A.** Yes.

13 **Q.** As you sit here today, do you have any reason to believe  
14 that you're mistaken, that your team was wrong in saying only 3  
15 of the 22 risks had been remediated as of November 30, 2018?

16 **A.** I stand by what I have in my affidavit.

17 **Q.** And when you prepared the November 30, 2018, risk  
18 assessment, did anyone at that time from the Secretary of  
19 State's office say to you, you've made a mistake, we have  
20 actually remediated more?

21 **A.** No.

22 **Q.** And since you prepared your declaration, has anybody on  
23 behalf of the state told you that your declaration was wrong in  
24 any way?

25 **A.** No.

1 Q. We talked earlier that you mentioned NIST. You actually  
2 provided a numeric score to Georgia Secretary of State as part  
3 of your November 30, 2018, assessment; right?

4 A. Yes.

5 Q. And that score ranges from 0 to 100; right?

6 A. Which score?

7 Q. Well, you gave them --

8 A. Are you talking about the NIST score or the risk weighting  
9 model that we use?

10 Q. It is the one -- if you look at the bottom, you see there  
11 on the report it has your name and then there is a little  
12 series of numbers, Payton and then zero zero zero.

13 A. Uh-huh (affirmative).

14 Q. Look at the one that ends in Page 112, if you will.

15 A. 120?

16 Q. 112.

17 A. I'm sorry. I feel dumb. I don't know what -- oh, you  
18 mean from 2017. And then I'm looking for 112?

19 Q. Yes. Sorry.

20 THE COURT: Are we talking about 112 in the 2018  
21 report?

22 MR. CROSS: Yeah. The 2018 report.

23 THE COURT: The November 2018?

24 THE WITNESS: Sorry.

25 MR. CROSS: The one you had.

1 THE WITNESS: I'm sorry.

2 MR. CROSS: It is Page 43 of your report, if that  
3 makes it easier.

4 THE WITNESS: Yes. Thank you.

5 **Q. (BY MR. CROSS)** So here you have -- there is a chart, and  
6 you give them a score based on your overall assessment; right?

7 **A.** Yes.

8 **Q.** And that score is between 0 and 100; right?

9 **A.** That's correct.

10 **Q.** What is good? 0 or 100?

11 **A.** 100, just like grade school.

12 **Q.** I figured. The score you gave them was only 53.98 on your  
13 overall assessment; right?

14 **A.** Correct. It is a little different -- well, I'll just say  
15 correct.

16 **Q.** Thank you.

17 **A.** Save you the time.

18 **Q.** You are very kind.

19 In October of 2017, your team expressed -- going back to  
20 October '17, your team expressed an overarching concern for the  
21 lack of control and oversight the state was able to maintain  
22 over the voter registration database; right?

23 **A.** Correct.

24 **Q.** In February 2018, you identified, as we discussed earlier,  
25 15 security risks involving the same registration databases;

1 right?

2 **A.** Yes.

3 **Q.** In fact, during the course of your assessments, you took  
4 interview notes; right?

5 **A.** We do do interviews. Yes, we take notes.

6 **Q.** And do you recall during those notes you heard concerns,  
7 for example, that PCC, which was managing and owned and  
8 operated the registration database -- there was concern among  
9 folks you interviewed at the Secretary of State that it was the  
10 most problematic vendor based on the level of access that they  
11 had?

12 **A.** Yes. Now, I'm doing that from memory. I could look at  
13 the notes, but I do remember that.

14 **Q.** And in an interview -- you also interviewed Chris Harvey;  
15 right?

16 **A.** I did not conduct the interviews. My team did.

17 **Q.** Fair enough.

18 **A.** But I reviewed -- but I do review the notes. If you need  
19 me to look at it, I can.

20 **Q.** We're going to look at the notes in a moment. Would it  
21 help you to have them first?

22 **A.** I would love to.

23 **Q.** Sure.

24 **A.** Thank you.

25 **Q.** If it helps you to take a look at them, you are welcome



1 to.

2 But just to set the stage, Ms. Payton, your team did  
3 interview Chris Harvey, right --

4 **A.** Yes.

5 **Q.** -- as part of the assessment? And Chris Harvey you  
6 understand is the head of elections for the Secretary of State?

7 **A.** Yes.

8 **Q.** And do you recall that he indicated --

9 MR. TYSON: I'm sorry. These were marked AEO. Are  
10 we going to get into the specifics of them? I just want to see  
11 how far we are going.

12 MR. CROSS: Not much. Only a couple of references.

13 **Q.** **(BY MR. CROSS)** Do you recall that Chris Harvey conveyed  
14 during the interviews that he considered PCC the greatest  
15 vulnerability that the state was dealing with?

16 **A.** Can you show me in his interview? I'm looking.

17 **Q.** Sure. So you're going to have to use these little numbers  
18 again with your name.

19 **A.** Yes. I see 192 -- 191, 192.

20 **Q.** Yep. Go to 192.

21 **A.** Okay.

22 **Q.** You've got a good memory of the notes if you found it that  
23 fast.

24 **A.** Is it about midway down? Who hosted? PCC vendor? Is  
25 that the section you are referring to?

1 Q. I think so. If you start on 191 -- just so we're clear,  
2 look at the bottom of 191. Do you see it indicates that these  
3 are the notes of the interview with Chris Harvey?

4 A. Yes, I do see that. Yes.

5 Q. Do you see in the middle where you were looking -- do you  
6 see in all caps who hosts it? Do you see that?

7 A. Yes.

8 Q. The answer is PCC vendor from 2012. Do you see that?

9 A. Yes.

10 Q. And to get there, again, we're talking about the voter  
11 registration databases; right?

12 A. Yes. That's correct.

13 Q. And Mr. Harvey indicated at this time that, being the  
14 voter registration databases, that is what Russian hackers  
15 would want to get into? Do you see that?

16 A. Yes.

17 Q. So that was -- that feedback was at least among the  
18 factors that you and your team considered in advising the  
19 Secretary of State to remediate the risk that you found with  
20 the voter registration database at that time; right?

21 A. Yes.

22 Q. You then did your November 2018 assessment. But at that  
23 point in time having looked at the voter registration database  
24 twice before and found a number of risk factors, by the time we  
25 get to the timing of the midterm elections, the Secretary of

1 State directed you that PCC and the voter registration database  
2 was out of scope for the November 2018 assessment; correct?

3 **A.** Yes.

4 **Q.** So we're clear, for the November 30, 2018, assessment,  
5 coinciding with the midterm elections, you did not conduct an  
6 assessment of PCC or the voter registration databases in the  
7 way that you had for the prior reports?

8 **A.** Correct.

9 **Q.** Do you recall that your team interviewed Lorri Smith, the  
10 chief operating officer?

11 **A.** I do. I don't remember the notes exactly.

12 **Q.** I can direct you if you need it. But do you recall that  
13 she informed your team that she thought the state's weakest  
14 link is their employees?

15 **A.** That is actually a common saying of the cybersecurity  
16 industry, that the human is the weakest link.

17 **Q.** That was one of the things you heard here; right?

18 **A.** I didn't hear it here. I wasn't here for --

19 **Q.** Your team did?

20 **A.** During the interviews?

21 **Q.** Yes.

22 **A.** Yes. Yes. I mean, Secretary of State of Georgia was  
23 incredibly candid and critical of themselves throughout the  
24 interviews.

25 **Q.** Which, again, is what helped you identify 22 risks in

1 October '17, 15 risks in February of '18; right?

2 **A.** Yes.

3 **Q.** Do you recall that Chris Harvey said during his interview  
4 that if he were king for a day he would have Georgia implement  
5 a paper-verifiable voting system? Do you recall that?

6 **A.** I don't, but that sounds like him.

7 **Q.** If you look --

8 **A.** I'm sure it is in here.

9 **Q.** Look at the page ending in 170.

10 **A.** I don't know why I can't find it because I was just  
11 looking at it.

12 Is it in the notes page, sir?

13 **Q.** It is in the notes. And --

14 **A.** Mine starts with 187 on the bottom right-hand corner.

15 **Q.** Does it start with 153?

16 **A.** No. I start with Ryan from legal with my stack.

17 **Q.** Okay. It is all right. We'll move on. Sorry about that.

18 **A.** No problem. Thank you.

19 **Q.** Sorry. I didn't realize --

20 **A.** Yes.

21 THE COURT: I just want to confirm. The 2018  
22 November report, the work was done between September 17 as the  
23 report indicates and November 30 of 2018; is that right?

24 THE WITNESS: Yes.

25 THE COURT: So when you give a -- the report says --

1 it says November 2018. Does it mean you produce it on  
2 November 30, or does it mean --

3 THE WITNESS: Yes. It is when we produced the  
4 report.

5 THE COURT: All right. But you were doing the work  
6 during the election?

7 THE WITNESS: Yes.

8 **Q. (BY MR. CROSS)** Ms. Payton, we are just about done. If  
9 you turn to the document we just gave you -- we'll mark all of  
10 this in a moment. That is the one that begins with the little  
11 Number 153 at the bottom. Do you see?

12 **A.** Yes.

13 **Q.** Turn to the page ending in 155. Do you see that?

14 **A.** Yes.

15 **Q.** Do you see there the caption king for the day?

16 **A.** I do. That is actually a question we ask in every  
17 interview.

18 **Q.** We noticed -- yes -- in each one.

19 In here, Mr. Harvey indicates in .3 that what he would  
20 seek as king for the day is a paper-verifiable voting system.  
21 Do you see that?

22 **A.** I do.

23 MR. CROSS: And we would move into evidence the  
24 notes, which will be -- what number are we at? The first one,  
25 which begins -- Exhibit 7 is the one that begins with Payton

1 153. And Exhibit 8 would be --

2 THE WITNESS: It says 187.

3 MR. CROSS: On the front? Thank you.

4 THE WITNESS: You're welcome.

5 MR. CROSS: You are better at this than I am.

6 Exhibit 8 would be --

7 THE COURT: Are you looking to introduce all of the  
8 notes or particular pages of notes?

9 MR. CROSS: We were going to introduce all the notes  
10 so Your Honor has the complete set. We have only highlighted  
11 particular portions. But since they underlie the assessments,  
12 we thought Your Honor would have them.

13 MR. TYSON: Your Honor, I don't have an objection to  
14 the notes coming in. The concern is if we could redact some  
15 pieces of it. I know that Ms. Payton when she is doing the  
16 interviews and her team -- they offer anonymity to the  
17 interviewees so they can be frank and obtain the self-critical  
18 analysis they need to obtain.

19 THE COURT: Why don't y'all discuss that. I'll admit  
20 it subject to redactions that you agree. And if you don't  
21 agree about something, you know where to come.

22 MR. CROSS: Thank you, Your Honor.

23 DIRECT EXAMINATION

24 BY MR. TYSON:

25 Q. Good afternoon, Ms. Payton.

1 **A.** Good afternoon.

2 **Q.** Thank you for being here. Bryan Tyson for the state  
3 defendants.

4 We'll get some context here and work through some of the  
5 things for you. So, first of all, I wanted you to, if you  
6 could for the Court, just explain a little bit about the types  
7 of security work that you have done up to this point in your  
8 career.

9 **A.** Sure. Absolutely. So I spent the first 16 years in the  
10 financial services industry. I had responsibility for  
11 developing emerging technologies for the bank that were  
12 customer facing, in addition to having fraud risk and security  
13 as part of my responsibilities. So if that gave you mobile  
14 banking, I also had responsibility to make sure you loved it  
15 and make sure it was secure.

16 Then I worked for President George W. Bush. I was the  
17 first female chief information officer to ever serve and the  
18 only unfortunately at this point. But one can always hope. I  
19 was there 2006 to 2008. I ran all of the technology and  
20 operations for the executive office of the President. That  
21 includes the White House, the 18 acres proper, the 13  
22 components that make up the executive office, Camp David, all  
23 of the unclassified systems on Air Force One and Marine One,  
24 the presidential residences, vice president residences, as well  
25 as the international and advance trips. So all of the

1 technology for those significant security events.

2 After leaving the White House, I started Fortalice  
3 Solutions. And we have three portfolios of work. One  
4 portfolio is classified contracts for the U.S. Government. And  
5 so we have three-letter agencies, as well as one of the  
6 branches of the U.S. military. We also have a brand promise.  
7 We never mention who our clients are publicly.

8 And then private sector practice, we serve the Fortune  
9 500. We do everything from offensive threat hunting, ethical  
10 hacking, the proactive side, like these risk assessments. We  
11 also help them with the fixes. And we do incident response  
12 forensics and expert witness testimony.

13 We have a third element. And the third element of what we  
14 do is we actually do people protection. So people in the  
15 public eye, we have helped people who were thinking about  
16 running for President. We have done musicians, athletes,  
17 celebrities -- anybody who needs their digital tracks protected  
18 or needs sort of care and concern.

19 I don't know if that is what you wanted for an overview.

20 **Q.** Thank you. And you have specialized training -- I'm  
21 sorry. What specialized training and experience do you have  
22 related to cybersecurity?

23 **A.** So I -- my graduate degree is from the University of  
24 Virginia. I have a master of science in management information  
25 systems. And then kind of on-the-job training over 30 years of



1 experience now of developing and designing -- we stood up the  
2 first ever 24 by 7 security operation center at the White House  
3 in 2006 to 2008. So building everything from the ground up.

4 **Q.** And do you have specialized knowledge about cybersecurity  
5 that is beyond the skill of a person lacking your training and  
6 experience?

7 **A.** I do. I mean, part of it is we have worked on some of the  
8 most sensitive incident response and forensics efforts that  
9 didn't make the newspaper, as well as a few. So we have -- so  
10 two cases I can talk about publicly because the client has  
11 asked me to on their behalf: We have one of the largest  
12 insider threat cases, USA vs. Wiwin (phonetic). He is in the  
13 jail of Charlotte, North Carolina, based on our forensics work  
14 and our cooperation with the FBI on that case.

15 The other case that we worked is Mecklenburg County. They  
16 were a victim of ransomware lateral movement. And we were  
17 brought in to do the forensics, figured out how they got in,  
18 what they were doing. That was actually the first case that  
19 anybody had observed that cryptocurrency miners had actually  
20 deposited cryptocurrency mining software in addition to  
21 ransomware. So we tend to be on the cutting edge of that.

22 We also do pro bono work for law enforcement, including  
23 ending child trafficking and child exploitation. So we work on  
24 a lot of cases with National Center for Missing and Exploited  
25 Children and the three letters around that work.

1 Q. Thank you. Are there reliable principles and methods  
2 utilized in evaluating cybersecurity organizations?

3 A. Yes. Absolutely. A couple of different things. NIST is  
4 one thing we have mentioned here today. That is not the only  
5 standard.

6 THE COURT: Could we just stop for one second. Do  
7 plaintiffs agree that this witness is an expert in terms of her  
8 area of expertise or not?

9 MR. CROSS: I was debating in my head whether to  
10 stand up and help with that, Your Honor. On behalf of Curling  
11 plaintiffs, we're not objecting to her as an expert in  
12 cybersecurity risk assessments.

13 Going beyond generally into elections -- I don't know  
14 if that is where they are going. I would object only because  
15 that doesn't appear in the case. The only expertise they have  
16 offered is looking at the internal infrastructure. Mr. Beaver  
17 himself said this morning that what she looked at only  
18 tangentially related to the election networks. So I don't see  
19 the relevance of anything beyond just general cybersecurity and  
20 infrastructure -- in an IT infrastructure.

21 MR. TYSON: Your Honor, we would be offering her as  
22 an expert in cybersecurity and intelligence operations, such as  
23 Fortalice conducts.

24 MR. CROSS: For elections specifically or just for IT  
25 infrastructure?

1           MR. TYSON:  Cybersecurity for IT infrastructure.  
2   Since we have DREs that are computers, that is a part of it.  
3   But there is interaction with the computer system.

4           MR. CROSS:  I have to object to that, Your Honor.  
5   Again, one, she didn't look at that in this case in her  
6   declaration.  And, two, there is no evidence that she did any  
7   examination like that at any point.  So relevance and  
8   expertise.

9           THE COURT:  The only thing is -- the reason I ask was  
10  I asked Ms. Payton on the phone when we were having one of  
11  those discovery disputes whether she had any other states as --  
12  in an election context as -- or other entities as clients.  You  
13  indicated no at that time.

14           So I mean, there is no doubt she's a cybersecurity as  
15  a whole expert.  It is the question of being an elections  
16  expert within that -- that subfield of that.  So that is --  
17  that is what I was just trying to get clarified.

18           And I don't have any problem with her testifying  
19  about general principles of cybersecurity or anything that  
20  she's worked on here, which she obviously has knowledge of.  
21  But if we're going to go into something specialized about  
22  election issues, then we just tread in a different way.

23           MR. TYSON:  Thank you, Your Honor.  We can proceed  
24  with that.

25           THE COURT:  All right.  Very good.

1 **Q.** (BY MR. TYSON) Ms. Payton, if you were advising a new  
2 client about general security principles, where would you start  
3 generally for someone who is engaging your firm to help them  
4 with cybersecurity?

5 **A.** Sure. Absolutely. So one of the things we do is we sit  
6 down and we say, who is using the technology? What is it used  
7 for? What are the regulatory bodies that you are responsible  
8 and held accountable to? Because NIST doesn't -- NIST is one  
9 framework. And it doesn't hit everything that you need to hit.

10 So then we would try to understand what are the security  
11 and privacy frameworks you are held accountable to. The next  
12 thing we would talk to them about is what do you want the user  
13 experience to feel like. Because the best security is the kind  
14 where it is not in their face where they want to actually work  
15 around the security.

16 And then once we have done that, we typically advise that  
17 there is a difference between popping the hood and looking at  
18 an engine when a mechanic does that -- and that is really what  
19 we were doing in the first assessment -- and then doing the  
20 interviews and talking to people.

21 Really truly doing sort of that red team analysis, you  
22 actually have to turn the car on like a mechanic would do. You  
23 have got to drive. You have got to drive fast, drive slow, and  
24 stop. So that is typically -- not every client is ready for  
25 that the first time you work with them. They don't have the

1 level of maturity to do anything with the findings that you  
2 have. They are not ready.

3 So that is why oftentimes we do what is called like a  
4 static technical assessment first. We look at the policies and  
5 procedures. We do the interviews. We give them an action  
6 plan. And then when we come back, it is not too -- some of  
7 them have us come back and reassess exactly what we did. But  
8 some of them say, I have limited time, limited money. Can you  
9 look at something new or look at something tangent?

10 **Q.** When you are looking at the security of any computer  
11 system, do you generally categorize them as a secure system and  
12 an insecure system or is there some other way that you look at  
13 that?

14 **A.** It is a spectrum. So everything -- and the goal posts  
15 move unfortunately because cyber criminals change their  
16 tactics. For example, when Windows 10 shuts down a certain  
17 vulnerability, they don't say, well, gosh, that's really hard  
18 now. I should bake pies for my neighbors. They look for the  
19 next vulnerability that hasn't been talked about and hasn't  
20 been fixed yet. The goal post moves.

21 It is really just a matter of -- a mature -- we call it a  
22 capability maturity model. So it is really moving along that  
23 capability maturity but understand the industry every year  
24 resets the goal post.

25 So you think you're at the ten-yard line. You are not.

1 Q. Have you ever had a client where you found zero  
2 vulnerabilities on an assessment?

3 A. No. No. We wouldn't have earned our pay if we didn't.  
4 We always find something.

5 Q. When you say you always find something, does the number of  
6 vulnerabilities tell you how secure or insecure an organization  
7 is?

8 A. Not necessarily. You know, in some cases -- so, for  
9 example, even at the White House -- so we would actually have  
10 the NSA come from the outside -- even though I had my own red  
11 team, I would have a fresh set of eyes come. So typically from  
12 the NSA. And, you know, one of the things you would find is  
13 the list of vulnerabilities, sometimes they are fairly easy  
14 fixes. Some of them are systems that need to be sunset. Some  
15 of them are as you are implementing the next system you need to  
16 let the vendor know so they can fix them.

17 So a long laundry list doesn't necessarily mean that  
18 you're inherently insecure. But it does indicate that you have  
19 a lack of maturity in your security program.

20 Q. So does this get back to the NIST rankings you were  
21 talking about earlier?

22 A. Yes, it does. So we use the NIST rankings, and there's --  
23 it is not really like A, B, C, D, like grades. It is more  
24 again that capability maturity, on that spectrum. I can also  
25 tell you most companies never achieve four. It costs too much,

1 too complex, too expensive, not enough staff.

2 **Q.** In your assessments of the Secretary of State's office,  
3 what have you found from 2017 to 2018 as you have worked with  
4 them regarding their missed rankings and status?

5 THE COURT: Could you state what NIST stands for  
6 again for the record. Because I know it now. I may not know  
7 it another day.

8 THE WITNESS: It is the -- I always forget what  
9 the -- it is the National Institute of Standards and  
10 Technology. So it is the federal government standards. And  
11 actually a lot of international companies use NIST as a  
12 framework.

13 **Q. (BY MR. TYSON)** So getting to the question, in terms of  
14 your assessments from 2017 to 2018 and your work with the  
15 Secretary of State's office, how has the NIST rankings changed?

16 **A.** When we first met them, we sort of put them just barely at  
17 a Level 2, which means there was some awareness, it wasn't  
18 repeatable, it wasn't deep enough.

19 When we came back for the assessment in three, there are  
20 still things that need to be fixed. But when we came back with  
21 that third assessment, we said that we felt that they had  
22 achieved very entry level still -- but achieved a level of a  
23 three. And they still have a lot of work to do within the  
24 spectrum of that -- it is not like you hit a three and you are  
25 great. Three is a long kind of corridor to go down.

1 Q. So in terms of becoming a three, have you continued your  
2 work with the Secretary of State's office since the  
3 November 2018 assessment?

4 A. Yes. As they have engaged us on different advice and in  
5 different projects -- and so one example, one improvement, that  
6 we did see is when we did our red team assessment, which is our  
7 ethical hacking assessment, one of the things we wanted to do  
8 was to set up what is called a command and control. Because  
9 that is actually a typical type of approach that nation states  
10 and cyber criminal syndicates use.

11 What command and control is it is almost as if I was the  
12 custodian of a building and I put the uniform on and I had the  
13 master key and everybody trusts me and they let me do things.

14 We had hypothesized in our first assessment that if they  
15 didn't make some of these changes that a command and control  
16 would be very -- you know, something that somebody with skill  
17 and knowledge and time could pull off. So that is the first  
18 thing we went after.

19 What we observed in that 2018, the third assessment we  
20 did, was, first of all, we weren't able to guess the passwords.  
21 So there had been some maturity around password maturity. So  
22 then we had to go to social engineering and tricking people  
23 into clicking on links.

24 I can tell you 100 percent of the time we are very good at  
25 what we do. People always click on my links. I usually go



1 after the chief information security officer. I almost always  
2 get them, almost always get the CEO.

3 Even though they clicked on the links, we were not able to  
4 use that to establish the command and control, which is  
5 typically what we do. Oftentimes, within an hour to eight  
6 hours, we own many of kind of the Fortune 500 networks by using  
7 that tactic.

8 **Q.** So as I understand your process, you then kind of take  
9 that assessment, you go in as a red team, look for the  
10 vulnerabilities. When you have identified vulnerabilities for  
11 clients at a high level -- and we'll get into the specifics of  
12 the office in a minute.

13 But at a high level, what then is the next step for an  
14 organization when you have told them here are the  
15 vulnerabilities?

16 **A.** So, now, what is interesting what -- so sometimes it  
17 happens that it is in a report and we do a report out and we --  
18 we want to walk in the shoes of our clients. So we typically  
19 lay out a report with the likelihood it is going to hit you and  
20 how bad it is going to be if it hits you. And then we actually  
21 put together an action plan, as if we were implementing it.

22 So we say, if we were you, we would start here, we would  
23 go here, we would go here. That is not always a reality for  
24 our clients.

25 In this particular case, the 2018 assessment, they

1 actually took us up on one of the service offerings we have.  
2 Instead of just doing that where we do the assessment, you get  
3 the static report, we actually did what is called more of a red  
4 team, blue team. That allows us to coach, train, and mentor as  
5 we go. That is a more complicated assessment because they have  
6 to be on hand. They are watching us do our trade craft, and we  
7 are telling them while we are in there what they need to do to  
8 shut us out so that somebody else doesn't do the same thing.

9 So they actually got some realtime feedback on coaching  
10 and training while we were doing that red team because we did  
11 it as more of kind of almost -- like we call it a purple team.  
12 So it was a red team and blue team together.

13 But yeah. That is really -- to me, I think that really  
14 speaks volumes of how much they want to improve. They are just  
15 limited by time, resources, and talent.

16 **Q.** Well, I'm sure you face situations where clients identify  
17 the vulnerability and had some constraint -- a budget  
18 constraint or other kinds of things.

19 What do you do in those kinds of scenarios?

20 **A.** Oftentimes, our clients will identify -- we'll actually  
21 give them a roadmap. A lot of clients would love to be  
22 aggressive. But it takes 24 months before they get to  
23 everything on the roadmap.

24 So what we often do is tell them here is how you can fix  
25 this in a low cost, no cost way. And we typically talk to them

1 about people and process. And oftentimes people and process  
2 can be a great interim solution until you can get a technical  
3 fix.

4 **Q.** So when you say people and process, is that a  
5 non-technological way of fixing a technical vulnerability?

6 **A.** Yes. So, for example, what you can say is like maybe you  
7 are stuck with the system that you have for how people access  
8 systems, including the election database or the website and how  
9 that gets launched. You may be stuck with that directory  
10 structure and you may be stuck with the software you have  
11 because you're waiting for more funding to come in to upgrade  
12 that.

13 So what you can do is you can actually go  
14 person-by-person-by-person and limit their access. So until  
15 you get to a more ideal solution, you can create this manual  
16 workaround.

17 Another potential manual workaround can typically be a  
18 process to say this one person does something and somebody else  
19 checks it. You can set into place creating manual logs, logs  
20 that actually will capture events. And then someone, of  
21 course, has to analyze those.

22 But there is always usually some type of a manual  
23 workaround or fix that our clients can put in place until the  
24 technical solution is available.

25 **Q.** One of the things that we heard discussed earlier today

1 was something called end point protection. Can you tell us a  
2 little bit about what end point protection is?

3 **A.** So end point protection is -- so we always say that our  
4 clients, they need a multilayered defense. So end point  
5 protection allows you to -- if an attacker is actually trying  
6 to send you, we call it, a payload -- so if they are trying to  
7 send you a file that has malicious software or malicious  
8 intent, that end point, if it is set up the right way, it is  
9 actually looking at the traffic.

10 Almost think of it as a bouncer at a toll booth. So as  
11 traffic is trying to approach some part of your infrastructure,  
12 that end point will basically interrogate that traffic and  
13 decide whether or not to let it through. It is not 100 percent  
14 foolproof. But implementing something like end point can  
15 really go a long way.

16 **Q.** Does end point protection protect things like USB drives  
17 or emails? Does it cover all those kinds of things?

18 **A.** It depends on how it is set up and where it is set up.  
19 Because you can put an end point at different places in the  
20 architecture. So it is not like you just put a dome over  
21 everything and like it is all great inside.

22 But you could set up end point in such a way that, yes, if  
23 somebody were going to put a thumb drive into a work station or  
24 a server you could have it set up to detect a problem. Again,  
25 it is not always foolproof though.

1 MR. CROSS: Your Honor, I apologize. I think we're  
2 beyond the scope of what she's offered in this case. I don't  
3 see anything about end point in her declaration.

4 Dr. Shamos covered this. But I don't believe she  
5 did, unless I'm missing it.

6 THE COURT: Is there something that --

7 MR. TYSON: Your Honor, we're offering her as an  
8 expert on cybersecurity. Her declaration is a summary of her  
9 testimony. This is pieces of the puzzle that she has done to  
10 analyze the Secretary of State's system and to give advice  
11 regarding the improvements in the cybersecurity structure. So  
12 we think it is relevant to your consideration. I don't think  
13 we are limited to just her declaration alone.

14 MR. CROSS: Well, it has got to be within the scope  
15 of the declaration. I'm happy to hear where it is. I just  
16 don't see how it relates to what she says in her declaration  
17 about these three assessments.

18 MR. TYSON: Your Honor, if we need to go through the  
19 assessments, I'm sure we can get the end point protection  
20 reference in the assessment. I can find that for Mr. Cross if  
21 he needs it.

22 THE COURT: I believe it would probably be helpful  
23 for him if you have it. I was looking for that.

24 There was a lot about access issues. It might be  
25 there.

1 MR. TYSON: Your Honor, I can move on to a different  
2 topic. If you want to do that, that is fine.

3 THE COURT: I mean, I'm going to allow everything she  
4 has talked about so far.

5 **Q. (BY MR. TYSON)** Let's talk a little bit more about what  
6 the Secretary of State's office retained you to do in these  
7 reports.

8 Before I get into the reports, I want to ask you about  
9 your declaration. Mr. Cross asked if you had opined on the  
10 security of the election system.

11 Were you asked in your declaration to opine on the  
12 security of the election system?

13 **A.** No.

14 **Q.** So let's go to the first risk assessment from  
15 October 2017. In that risk assessment on Page 3, there were  
16 ten identified vulnerabilities. Mr. Cross asked you about,  
17 Number 1, widespread local admin rights and, Number 2, lack of  
18 two-factor authentication.

19 Can you give a little bit of context on those findings and  
20 what you typically find in an organization on the cybersecurity  
21 front?

22 **A.** Sure.

23 THE COURT: What page are you on? I'm sorry.

24 MR. TYSON: I'm sorry. On October 2017, Page 3, that  
25 is the summary, Your Honor.

1 THE COURT: All right. Fine.

2 THE WITNESS: Yes.

3 MR. CROSS: Your Honor, I apologize. I have no  
4 problem with her describing what she found. But I do object to  
5 the latter part of the question on how that compares to what  
6 she finds elsewhere.

7 She has already established she hasn't done this for  
8 any other state. And there has been no basis to conclude that  
9 whatever she does in the Fortune 500 sector is relevant in an  
10 election context.

11 MR. TYSON: Your Honor --

12 MR. CROSS: I think we can all agree that what  
13 private companies do with data is dramatically different than  
14 what a Secretary of State has to do with election data.

15 MR. TYSON: Your Honor, I don't believe Ms. Payton  
16 has testified she doesn't work for any other governments.

17 MR. CROSS: No. No. I'm sorry. I thought -- my  
18 recollection was the same as Your Honor's. She has not done  
19 any sort of assessment like she did here for another state or  
20 any election system.

21 So if she wants to talk about her general practice --  
22 or I'm sorry. If she wants to talk about what she did here,  
23 that is fine. But they keep trying to draw these connections  
24 to the private sector. And there is no basis for how that's  
25 relevant, unless there they are suggesting that all they have

1 to do is what a private company does to maintain their data.

2 But I doubt the Secretary of State is going to  
3 suggest that that is sufficient for their election system.

4 THE COURT: What is the focus of your inquiry? Is it  
5 going to be all comparative to her clients? I mean, I thought  
6 I went over the fact that I had some concerns about her doing a  
7 comparative on the elections since she said on -- Dr. Payton or  
8 Ms. Payton said she didn't represent and had worked for anyone  
9 else in the election context other than the State of Georgia.

10 I'm not saying that cybersecurity principles are all  
11 different. But I think more particularized -- and that  
12 comparison seems to be outside -- would be outside the range of  
13 what she would be able to properly discuss. So, you know, the  
14 general operation -- the general cybersecurity issues are  
15 certainly relevant. I know that may be too vague for you as  
16 proper guidance.

17 MR. TYSON: Your Honor, maybe I can clarify. One of  
18 the allegations that plaintiffs have made is that there are  
19 these connections between the public side of the Secretary of  
20 State's website and movement of things to the air-gapped areas  
21 of the separate ballot servers.

22 And so the relevance of the cybersecurity of those  
23 public-facing pieces of the Secretary of State's office is  
24 relevant to the claims in this case. And that is what I wanted  
25 to explore with Ms. Payton on what she has seen there.



1           If we don't want to compare to the private sector  
2 that has to deal with HIPAA and banking and all that kind of  
3 things, we can compare her to her other government clients, I'm  
4 sure, just to see what she sees.

5           The allegation from plaintiffs has been that there is  
6 this -- the Secretary of State's office is this outlier in  
7 terms of a government with its vulnerabilities. And this is  
8 trying to look at that question and whether that is actually  
9 true.

10           THE COURT: All right. Just so we can discuss this  
11 and no one feels like they are being unfairly dinged in time,  
12 I'm just taking this discussion that started about two minutes  
13 ago off the time clock until we are through.

14           MR. CROSS: Your Honor, again, the comparison they  
15 are drawing has no relevance. Because her only experience,  
16 even in a government setting, it is not election data. It is  
17 not election security. That is the scope of the expertise that  
18 would have to matter to say that what they have done here meets  
19 constitutional requirements.

20           There are no constitutional requirements for whatever  
21 the government might be doing for -- we don't even know what  
22 yet they are talking about. There is no foundation, first of  
23 all.

24           Private companies have no constitutional requirements  
25 with respect to the data they maintain. So it is just a very

1 different thing.

2           The other point I'll make, Your Honor, is they chose  
3 a horse for this. It was Dr. Shamos. Dr. Shamos is the expert  
4 they chose to testify to this. And I think we all know why  
5 they have chose another horse. Because when you hear his  
6 testimony, you are going to find that he absolutely indicts  
7 their system, including the point that Mr. Tyson --

8           THE COURT: All right. Let's not get into rhetoric  
9 at this point. It would seem -- I'm either too quiet or too  
10 loud.

11           MR. TYSON: I keep backing away also.

12           THE COURT: Well, I know that there are people in the  
13 audience who feel I have been too quiet or move too far from  
14 the microphone. So I'm trying to satisfy both.

15           Mr. Cross, it would seem though that the whole  
16 question of how to interface -- that cybersecurity issues of  
17 interface between an outward-looking interface and the need to  
18 protect -- for protection would be common, even if it is a  
19 different context.

20           There may be more concerns arguably about privacy  
21 when you have an obligation to protect the privacy of a voter.  
22 Though you have obviously a HIPAA context. You have that as  
23 well.

24           But there are different contexts, and I recognize  
25 that. But just simply the cybersecurity challenges of having

1 both an outward interface and one that is not would seem to be  
2 at least from the cybersecurity issue to have some common --  
3 major common strands.

4           And to the extent that is so, I will let her testify  
5 that she was looking at that and obviously while there are  
6 limits in what Fortalice looked at and certainly extreme limits  
7 about what it looked at in combination with Cloudburst in 2018  
8 in February -- and then they didn't choose -- not her fault but  
9 the state chose not to look at it again, I take that -- I take  
10 note of that.

11           But to the extent she looked at it, I think she can  
12 testify about that.

13           MR. CROSS: To be clear, Your Honor, I have no  
14 objection to her testifying to what she examined and what she  
15 found. It seemed like where Mr. Tyson keeps wanting to go is  
16 to draw a comparison to other contexts. She even was trying to  
17 do it during the direct to say, well, this is common.

18           THE COURT: It would be more helpful to the Court at  
19 this juncture for Ms. Payton to be just simply talking about  
20 her findings rather than going -- because we don't -- yes, they  
21 are a comparator. And she's obviously considered how does this  
22 rank compared to others.

23           But mostly what she has is not how does it compare to  
24 others in this report. But is it really significant? Does it  
25 really matter? And that is the most important thing to me, I

1 think, at this juncture.

2 If there is something that's comparable, I'm not  
3 going to completely prevent you from going into it. But it  
4 shouldn't be the focus here, especially when there is nothing  
5 either in her affidavit or in any of these materials that would  
6 suggest that as the basis of her testimony. And she -- and  
7 everyone here has foregone full expert reports. But I do at  
8 least need to keep you a little roped in to what you have  
9 notice of because, otherwise, we're going to be here forever  
10 and I won't have a basis for understanding how did we get here.

11 Okay. Thank you.

12 MR. TYSON: Thank you, Your Honor.

13 **Q. (BY MR. TYSON)** Ms. Payton, when Mr. Cross was earlier  
14 asking you to go to Page 12 of the October 2017 report, he  
15 asked you about widespread local admin rights, the first  
16 identified risk?

17 **A.** Uh-huh (affirmative).

18 **Q.** I believe you wanted to offer a little more context about  
19 that. Can you do that within the confines of what the Court  
20 has kind of established for what we're talking about?

21 **A.** Yes. So local admin rights, what that -- again, that's  
22 sort of the keys to the kingdom. And what we observed is they  
23 have actually made improvements in this.

24 What we observed when we were here the first time and  
25 doing this was you had shared admin access, which means more

1 than one person could use an account and log in, which makes it  
2 hard if you have got insider threat or issues to actually know  
3 who did it. And then the other piece is making sure that  
4 somebody can't use an account to escalate their privileges and  
5 then basically go and look at everything else.

6 THE COURT: I'm sorry. Could you just turn it down  
7 slightly -- the volume down slightly. Just get a little  
8 further away from the microphone.

9 THE WITNESS: Get a little further away?

10 THE COURT: Yes.

11 THE WITNESS: Okay. Thank you.

12 **A.** So the other thing I would like to kind of explain is when  
13 we look at local admin rights one of the things we think about  
14 is like if you think of your house. If you lock the front door  
15 and somebody breaks in the door, then they have got access to  
16 the rest of the house.

17 So the reason why we look at local admin rights is if you  
18 want to use an analogy of you're locking every closet door,  
19 every hallway door, every cabinet. So you are making it harder  
20 for somebody that if they actually break through the first lock  
21 it is hard for them to take anything.

22 So that is why we look at this first. We did see  
23 improvements in that in 2018.

24 **Q. (BY MR. TYSON)** The second area of risks, the lack of  
25 two-factor authentication, the next page on Page 13 that

1 Mr. Cross asked you about, have you seen improvement in the  
2 Secretary of State's office on that point?

3 **A.** Yes.

4 **Q.** What kind of improvements have you seen?

5 **A.** They have been implementing two-factor authentication.  
6 Again, two-factor authentication is kind of like the bane of  
7 most end user's existence. They hate strong passwords, and  
8 they hate two-factor authentication. And oftentimes they feel  
9 like it is designed to keep them out and let the bad guys in.  
10 It is hard for people sometimes to understand and use or they  
11 forget to have the right device.

12 But they have done a better job of getting two-factor  
13 authentication in place. There is always room for improvement  
14 on going from two-factor authentication to actually multifactor  
15 authentication. But they have done a good job there.

16 **Q.** And Number 5 on Page 60, Mr. Cross asked you about  
17 nonunique local administrator account passwords.

18 **A.** Yeah. I probably blended a little bit of that in my  
19 last -- my answer before last. That is where we see this a lot  
20 because a lot of times admin accounts you have to actually pay  
21 money for the license. And so we do see where more than one  
22 person will share a license because they are trying to save  
23 money or they are trying to sort of round the clock support  
24 setup that access. And that is -- it is considered a no-no.  
25 It is like sharing a toothbrush with somebody. You don't do

1 it. Right?

2 So from a good security hygiene perspective, we told them  
3 this needed to be fixed. And they have made improvements in  
4 that.

5 **Q.** When you are talking about making improvements, is there a  
6 reason why these fixes are not administered immediately for  
7 some of these identified vulnerabilities?

8 **A.** Sometimes -- I mean, security is complex, and it breaks  
9 things when you implement it. It is why a lot of organizations  
10 have a hard time keeping up with security patches. You  
11 implement the patch. It is hard to test and make sure it is  
12 not going to break anything. And nobody wants to have  
13 broken-in production. So that is why. This stuff has to be  
14 tested. You have to figure out what am I going to break by  
15 implementing this new security. And then you have to take into  
16 account money resources, who is going to support it. It takes  
17 additional resources to support different security tools you  
18 put in place.

19 **Q.** And when you say they break things when you add a patch,  
20 can you explain a little bit more on what breaking things would  
21 mean?

22 **A.** Yes. Sure. So oftentimes a security patch -- you are  
23 actually going to change base code of a system, either the  
24 hardware, operating system, or the software or how an app works  
25 in order to shut down that security vulnerability. And when

1 you do that, sometimes an unintended consequence is you break  
2 something else in the system when you do that.

3 So maybe -- for example, I have seen where adding a  
4 security patch, something that has been hard coded to expect  
5 something to work a certain way in Windows 10 or on a Lennox  
6 operating system, you put the security patch in and suddenly  
7 that hard coding is no longer there and then it doesn't work.  
8 Then you've got a production problem.

9 **Q.** Let's go next to your February 2018 assessment, the review  
10 of the PCC. It is titled a vendor cyber risk assessment.

11 Can you tell me a little bit about what vendor cyber risk  
12 assessments are?

13 **A.** So one of -- obviously for the Secretary of State of  
14 Georgia, they have third-party vendors. And there is always  
15 risk with third-party vendors. It can be everything from  
16 contractually if they have an issue, when are they going to  
17 notify you, what is the service level agreement.

18 And then you are in sort of a trust but verify mode. You  
19 don't see them doing the programming work. You have to ask  
20 them to do like self-attestations are you secure. You have to  
21 trust their answers. So sometimes we get called in by firms to  
22 actually do these third-party vendor assessments for them.

23 **Q.** And you identified 15 vulnerabilities in that point?

24 **A.** Uh-huh (affirmative).

25 **Q.** Did the Secretary of State's office take further action



1 after receiving this assessment regarding PCC?

2 **A.** They did. The vendor -- so -- because I talked with the  
3 team about this a little bit. The vendor was challenged. We  
4 don't really know why. But fairly slow to turn around fixes.  
5 And it could be that they just have a lot of complexities.  
6 They might have a lot of hard-coded processes that as you are  
7 asking them to add in the security fixes it is messing up their  
8 hard-coded processes. I'm not really sure.

9 But my team noted that they were probably one of the most  
10 difficult kind of situations to get the vendor to turn things  
11 around more quickly.

12 THE COURT: And you understood that dealt with the  
13 voter registration database?

14 THE WITNESS: Yes.

15 **Q. (BY MR. TYSON)** Was the Secretary of State's office  
16 working throughout 2018 on the issues with PCC?

17 **A.** They were.

18 MR. CROSS: Objection, Your Honor. Foundation. I  
19 don't know how she could speak to what the Secretary of State  
20 was doing throughout the year.

21 MR. TYSON: I'll be happy to ask a foundation  
22 question, Your Honor.

23 **A.** They asked --

24 MR. TYSON: Let me ask you a question. Sorry.

25 **Q. (BY MR. TYSON)** Are you aware of actions the Secretary of

1 State's office took after receiving your PCC cyber risk  
2 assessment?

3 **A.** They actually asked us to attend meetings with them from  
4 time to time. And sometimes the frequency was weekly. And  
5 that is pretty typical. Our clients sometimes will get a  
6 little tongue-tied on what it is they actually need. And so  
7 sometimes they like to have us on there to kind of be the  
8 hammer to say this needs to be fixed and here are some ideas on  
9 how you might want to fix something like that.

10 **Q.** And there were questions raised earlier about not looking  
11 again at PCC. Were there particular decisions made around not  
12 doing an additional assessment of PCC that you're aware of?

13 **A.** Not that I'm aware of. But it is not uncommon for  
14 customers to say, okay, when we have you in, can you look at  
15 something new? Sometimes we get asked to reassess things, and  
16 sometimes we get asked, like, I only have this much money and  
17 this much time, can you look at something new because I may  
18 have vulnerabilities I don't know anything about.

19 **Q.** In the later part of 2018, was there a different kind of  
20 assessment that was done for the Secretary of State's office on  
21 your November report? Was that a different assessment than the  
22 prior ones?

23 **A.** Yes. Because the reason why this one was different was  
24 they asked us to do that red team assessment. So the more --  
25 very much more technical hands-on with defined rules of

1 engagement.

2 **Q.** That means it was a little more expensive?

3 **A.** It is more expensive and labor intensive both for them and  
4 us. But that is typically where we find new vulnerabilities.

5 **Q.** And if you can, go to Page 8 of the November 2018 report.  
6 Given your experience in cybersecurity, is it unusual to only  
7 have three of ten risks mitigated?

8 **A.** No. A lot of times we get asked to turn this report into  
9 a timeline, a roadmap, for them to take to their executives  
10 for, like, capital expenditures. And sometimes it is 12  
11 months. Some clients it is 36 months because they just know  
12 with everything else going on they are not going to get the  
13 money or the resources or the priority.

14 **Q.** So on the next page, Page 9, Number 5, 7, and 8 all are  
15 listed as underway as the status. What does underway as a  
16 status for you in a risk assessment mean?

17 **A.** Underway means they are not just talking about it and  
18 thinking about it, they have actually started. They either  
19 have meetings, or they are in vendor conversations, or they are  
20 in development.

21 And underway actually -- there are guidelines for that  
22 within the NIST framework on how to think about something  
23 started. Because a lot of people can say, well, we had a  
24 meeting, and we talked about it, so we started. That is not  
25 legit.

1 Q. When you mention the NIST framework around that  
2 categorization, do you have ethical obligations around  
3 complying with those NIST requirements and descriptions?

4 A. I do. I mean, so we tell our clients we go where the  
5 facts lead us. And we have had from time to time where people  
6 will say I need a better score. We're like, okay, well, then  
7 you have to do things to get a better score. The facts are the  
8 facts.

9 Q. So speaking of scores, if you can go to Page 43 of that  
10 report.

11 A. Sure.

12 Q. Let's talk about the score that Mr. Cross asked you about  
13 there.

14 Can you explain in some more context what the score  
15 measures and what you would expect to see in a government  
16 organization regarding a score like this?

17 A. Yes. So this isn't like this is a failing grade to get a  
18 50. So it is not like -- it is not like you got 47 percent  
19 wrong kind of thing. This is a maturity model.

20 So this is actually the CIS Top 20 controls, which looks  
21 at more than just the NIST framework. One of the things that  
22 it also accounts for is actually guidelines for protecting  
23 critical infrastructure, which election is critical  
24 infrastructure.

25 You'll notice too they actually have input and guidance in

1 the CIS Top 20 controls from the election security information  
2 sharing and analysis centers, the MS-ISAC. So to us we felt  
3 like this was another benchmark we needed to hold them  
4 accountable to because of that critical infrastructure.

5 So what that grade means -- you'll notice we graded their  
6 policies and whether or not you see the basic implementation,  
7 automation, and governance. And each level is worth 20 points.

8 So you'll notice one of their lower scores is around  
9 policy. So they have policies complete. They need to do more  
10 work on the policies. You'll notice on governance -- that's  
11 not uncommon that from a governance perspective that tends to  
12 be something you do later. So you do the fixes -- the critical  
13 vulnerabilities and fixes. Then you figure out, so how are we  
14 going to make sure it stays fixed? Who is responsible for  
15 that?

16 You typically do like a governing body that gets together  
17 and meets and talks about that. So you'll notice those are  
18 areas in the report that say they need improvement. And then  
19 when we put them up against the CIS Top 20, which includes the  
20 election ISAC critical infrastructure guidelines, that is how  
21 we got the score.

22 **Q.** Is this a score that can be compared with other states or  
23 other government entities, or is this just a tracking score  
24 internally?

25 MR. CROSS: Objection. Foundation, Your Honor. She

1 hasn't done this for other states involving any kind of  
2 election system.

3 MR. TYSON: I asked about governments, Your Honor,  
4 and I believe she has worked for plenty of governments,  
5 including the President.

6 THE COURT: I guess the problem is -- I'm going to  
7 allow her to answer. But I don't think it is worth that much  
8 in the context of what I -- of what I'm trying to find out. I  
9 think it shows functionality. We're not just talking about  
10 having a, you know, functional system stripped of thinking  
11 about is it producing an election with integrity that is  
12 protected in terms of the cast of the vote. That is -- that we  
13 don't know anything about right now. But you can go ahead and  
14 ask.

15 **Q. (BY MR. TYSON)** So are you able to answer the question?  
16 Is this a comparative that can be used as a comparison with  
17 other governments, or is it more just an internal tracking  
18 score?

19 **A.** It can be used to compare. And part of this is maturity  
20 of other entities that use the CIS Top 20. Right. So yes,  
21 this is a comparative score. And it is how you rank up against  
22 the framework.

23 And if I may give a clarification that maybe I wasn't  
24 clear on earlier, we have done work with states and  
25 governments. We are not representing another state in a

1 lawsuit around elections. But I also work with DHS on critical  
2 infrastructure. Election is one of them.

3 I have also worked with the people who did the  
4 coordination for DEF CON's hacking village. So I wasn't in the  
5 hacking village but worked with that group, as well as I have  
6 been working on my book for two years. So I have been studying  
7 it as well. So I just wanted to add that point of  
8 clarification.

9 **Q.** Thank you.

10 On the next page on Page 44, second paragraph, you say the  
11 GA SOS scored well in the maturity ranking.

12 Does that cover what you just explained to the Court?

13 **A.** It does.

14 **Q.** Ms. Payton, has your opinion of the security environment  
15 at the Secretary of State's office gotten better or worse since  
16 you were first retained?

17 **A.** Better. I mean, they are -- given the constraints they  
18 have, getting taxpayer dollars, you know, the fact that, you  
19 know -- one of -- the unemployment rate for cybersecurity  
20 professionals is like a war for talent. I mean, it is hard.  
21 And so they have done a lot of work with a small mighty team  
22 and with the budget they have to work with. But obviously I'm  
23 not an easy grader either.

24 **Q.** You mentioned earlier in the discussion about the notes  
25 from the interviews of the Secretary of State's staff that they

1 were critical of themselves.

2 Is that a negative thing? Is that a positive thing? How  
3 do you see that?

4 **A.** It is very positive. What is interesting is -- so our  
5 framework is we say it is non-attributational, we're not going to  
6 tell anybody who said what. Obviously that got violated  
7 somewhat today. I'm feeling really bad about that. Because we  
8 always tell people we keep copious notes but what goes in the  
9 report are verbatims without your name. So I feel kind of a  
10 duty of care to say that.

11 But one of the things we noticed is my team commented  
12 right away, they came prepared, they came with documents, they  
13 were candid, they didn't hide stuff, and they were very  
14 critical of themselves. Like, we have to do more. We need to  
15 do more. We can do better.

16 I have observed a mix of that in some clients where they  
17 kind of blame upstairs. There is a little bit of victim  
18 mentality. And I have not observed that in the interviews.

19 MR. TYSON: Your Honor, I have one other area of  
20 questions that is not included in Ms. Payton's declaration. It  
21 is a review that she conducted after the declaration was filed  
22 of the DREs and some of the just physical security components.  
23 So I wanted to raise that to you and see if that's a line of  
24 questioning we could proceed on today. I don't think it will  
25 take long.



1 MR. CROSS: I'm sure you know what I'm going to say  
2 on that, Your Honor. I mean, they engaged her in 2017. They  
3 never asked her to do this until last week. We have no  
4 opportunity to even know anything about this to respond. I  
5 mean, come on.

6 MR. BROWN: Same objection.

7 THE COURT: I'll sustain the objection.

8 MR. CROSS: Thank you, Your Honor.

9 MR. TYSON: Just one moment.

10 **(There was a brief pause in the proceedings.)**

11 MR. TYSON: I don't have any further questions.  
12 Thank you.

13 RECROSS-EXAMINATION

14 BY MR. CROSS:

15 **Q.** Ms. Payton, you talked about -- you described how to do  
16 the proper cybersecurity assessment.

17 THE COURT: Do you need any water or anything else?

18 THE WITNESS: I'm good. Thank you, Your Honor.

19 THE COURT: Go ahead.

20 **Q. (BY MR. CROSS)** You described how to do a proper  
21 cybersecurity assessment. You said it is like a mechanic. You  
22 have got to look under the hood, turn the car on, drive it slow  
23 and fast.

24 Do you remember saying that?

25 **A.** Yes.

1 Q. You didn't do anything like that for your risk assessments  
2 or your declaration with respect to DREs, memory cards,  
3 scanners, or GEMS servers; correct?

4 A. That's correct.

5 Q. You talked about how software changes over time and so  
6 criminals change their tactics in response; right?

7 A. Correct.

8 Q. You gave the example of Windows 2010, for example, dealing  
9 with the vulnerabilities; right?

10 A. Yes.

11 Q. You would agree that criminals don't have to change their  
12 tactics if what they are trying to attack is using old  
13 software; right?

14 A. That is correct as well.

15 Q. And you didn't look at the current software that is being  
16 run on GEMS servers or DREs in the State of Georgia; right?

17 A. That is correct.

18 Q. So you are not aware that their software dates back on the  
19 GEMS servers to 2000 -- Windows 2000?

20 A. No. But it is -- there's lots of infrastructure on  
21 Windows XP, 2000. I'm -- it is disappointing. But I'm not  
22 surprised.

23 Q. You are not offering an opinion in this case that using  
24 Windows 2000 in 2019 for elections is a secure and reliable way  
25 to --

1 **A.** I wouldn't want to run my stuff on it. But you can get --  
2 you can pay for patches. The banks are paying for patches for  
3 ATMs.

4 **Q.** You anticipated where I was going.

5 Are you aware that from the evidence we have seen the last  
6 patch to the current election system using GEMS and DREs is  
7 from -- at least for GEMS, I think, is 2005?

8 **A.** No. I was not aware.

9 **Q.** You did penetration testing in November 2018 that  
10 successfully gave your team administrative rights over the  
11 Secretary of State's domain; right?

12 **A.** Correct.

13 **Q.** You talked about your Fortune 500 clients today. And I  
14 don't want to reopen a door. But since the judge allowed some  
15 of that, I just briefly want to touch on it.

16 But just so we are clear, you are not offering an opinion  
17 in this case that the same level of security that would be  
18 appropriate for, say, a Fortune 500 company dealing with their  
19 own private data -- you are not offering an opinion to the  
20 Court that that would be appropriate security for managing an  
21 election and election data and election equipment; right? That  
22 is not an opinion you have offered in this declaration; right?

23 **A.** I have not offered that in the declaration. That is  
24 correct.

25 **Q.** The risk assessments you did, that was only for the

1 Secretary of State; right?

2 **A.** And the vendor.

3 **Q.** And the vendor?

4 **A.** Yes.

5 **Q.** You didn't do a similar risk assessment for any of the 159  
6 counties in Georgia; right?

7 **A.** That is correct.

8 **Q.** So in looking at the vulnerabilities -- cybersecurity  
9 vulnerabilities, you did not assess the degree to which each of  
10 the counties, for example, having their own GEMS servers --  
11 what vulnerability that might present for the Secretary of  
12 State; right?

13 **A.** That's correct.

14 **Q.** Are you aware that county election servers are connected  
15 to phone lines using modems? Was that something you knew?

16 **A.** We did not look at that architecture.

17 **Q.** Were you here for Mr. Barnes' testimony?

18 **A.** Part of it, I believe. I came in towards the end of  
19 somebody's testimony. I'm sorry if I -- I think it was  
20 Mr. Barnes.

21 **Q.** Are you aware that Mr. Barnes testified today and then  
22 again in September of last year that he has a USB drive he  
23 plugs in to his public-facing computer, which means he is  
24 connected to the internet, and then he plugs that same USB  
25 drive into what he calls an air-gapped GEMS server? Do you see

1 that?

2 **A.** I did hear about that, and I heard sort of the  
3 re-explanation of some of that.

4 **Q.** And you're not offering an opinion here that you would  
5 recommend that as a reliable cybersecurity practice for an  
6 election management system; right? It is not an opinion you  
7 have offered; right?

8 **A.** No, I have not.

9 **Q.** You testified that remediation takes time; right?

10 **A.** Yes.

11 **Q.** But nowhere in your November 2018 assessment did you  
12 convey to the Secretary of State that their failure to  
13 remediate 19 of the 22 risks you had identified over a year  
14 earlier -- that that was perfectly appropriate and consistent  
15 with your expectations? That does not appear in that report,  
16 does it?

17 **A.** No, it doesn't.

18 **Q.** Nor do you convey to them in that report that their  
19 failure to remediate 19 of 22 security risks over the span of a  
20 year is consistent with cybersecurity standards; right?

21 **A.** I'm not sure I follow.

22 **Q.** Well, there are cybersecurity standards that you follow --

23 **A.** Yes.

24 **Q.** -- and apply to assess risk?

25 **A.** Yes. They don't tell you a time frame.

1 Q. Right. But my only point is: There is nowhere that I can  
2 look in your November 30, 2018, report which coincided with an  
3 election in the state of 4 million voters, where you conveyed  
4 to the Secretary of State that their failure to remediate 19 of  
5 22 risks after an election -- that that meets whatever  
6 cybersecurity standards you were applying in that time?

7 A. I see what you are saying. Yes, we still say it was  
8 critical and needed to be fixed.

9 Q. You testified that it is common for customers not to ask  
10 for assessment on certain aspects of a network or a system;  
11 right? Yes?

12 A. Yes.

13 Q. Thank you. And, here, just so we have the facts right,  
14 you did two prior assessments before November of 2018 on PCC on  
15 the registration database; right?

16 A. We did one for the vendor and one for the Secretary of  
17 State of Georgia.

18 Q. And in February of 2018, you found 15 risks; right?

19 A. Yes.

20 Q. And so then when we get to the November 30 assessment that  
21 coincided with the midterm election; right?

22 A. Yes.

23 Q. So you are not offering an opinion in this case that it  
24 was appropriate in your mind for the Secretary of State to  
25 remove from the scope of your work PCC and the voter

1 registration database that you had analyzed multiple times  
2 before, identified over a dozen risks -- you are not telling  
3 the Court that it was appropriate for them to remove that from  
4 the scope of your work for the first time coinciding with a  
5 midterm election in November of 2018; right?

6 **A.** I'm not sure I follow. You mean, I didn't cover that in  
7 my declaration or --

8 **Q.** That is not an opinion that you offer anywhere in your  
9 declaration? That it was appropriate for them to tell you  
10 coinciding --

11 **A.** Yeah. I didn't say it was appropriate.

12 **Q.** Lastly, you mentioned that you have done work with DHS on  
13 critical infrastructure; right?

14 **A.** Yes.

15 **Q.** You said critical infrastructure includes elections;  
16 right?

17 **A.** Yes.

18 **Q.** So even though you have that experience, we're just clear  
19 the Secretary of State not for any of the assessments you did  
20 in 2017 or 2018 or for the purpose of your declaration -- not  
21 once did they ask you or engage you to do a risk assessment of  
22 the election piece of their infrastructure meaning GEMS, memory  
23 cards, DREs; right?

24 **A.** Correct.

25 MR. CROSS: Thank you.

## REDIRECT EXAMINATION

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BY MR. TYSON:

**Q.** Just briefly on a couple of points since Mr. Cross has asked about the GEMS servers and the software on them.

Ms. Payton, Mr. Cross asked you a question about running Windows 2000 on a GEMS server.

Do you recall that question?

**A.** I do.

**Q.** And do you know enough information by just knowing the operating system alone to determine the security of a system?

**A.** Yes and no. The operating system, if it is an older operating system, one of the things I tend to look for is what are the mitigating controls around that old system.

So, for example, the diarist at the White House used something ancient that was a very, very old operating system, no patches available. And when I tried to talk to the Chief of Staff about it, he said, if the diarist doesn't want to move, just figure out how to secure it. So I had come up with mitigating controls around this ancient system to make sure that the President's diary was protected and safeguarded.

So typically those older operating systems, it is not -- for whatever reason, a vendor has a hard time moving. Like most of banking ATMs are on Windows XP. Because of that, you can either buy more patches or do your own mitigating controls.

But we always recommend to clients the sooner you can get



1 off of old operating systems the better. But we understand the  
2 reality that sometimes they can't.

3 **Q.** And what are mitigating controls that you would recommend  
4 in that kind of scenario?

5 **A.** You can put technology around it. So what you can do is  
6 put a more modern -- I call it like a wrapper. So you can take  
7 this old ancient technology and put around it more modern  
8 technology that will detect the threats that are coming at it.  
9 You can also do things like not have --

10 THE COURT: All right. Do you know that any of that  
11 was done?

12 THE WITNESS: I don't know.

13 THE COURT: All right. I think it is theoretical  
14 unless I know it was actually done.

15 MR. TYSON: And, Your Honor, my only question on that  
16 was is physical security a thing you can do as well.

17 THE WITNESS: Yes. Physical security is oftentimes  
18 the best solution.

19 THE COURT: But you understand we're dealing with 159  
20 counties that are also communicating with the Secretary of  
21 State's office and lots of other entities and also potentially  
22 voters who are accessing their information system.

23 Did you look at any of that?

24 THE WITNESS: No.

25 THE COURT: Okay.

1 MR. TYSON: I don't have anything else, Your Honor.

2 THE COURT: Okay.

3 MR. CROSS: No further questions.

4 MR. BROWN: No questions.

5 THE COURT: Mr. Brown, did you have any?

6 MR. BROWN: No, Your Honor.

7 THE COURT: All right. I would -- so that I don't  
8 end up calling somebody back later on, I'm going to take a  
9 break and look at my notes so I won't do to you what I did  
10 before.

11 So we're going to take about a five-minute break. I  
12 guess you should be prepared to address for me at that juncture  
13 how you want to proceed.

14 MR. CROSS: I was going to say, Your Honor, our next  
15 witness was going to be Dr. Shamos. We have a video that we  
16 were going to play. So we can do that after the break if that  
17 works.

18 THE COURT: All right. Well, I think we should go  
19 over what the hours are and what you think is left also. I  
20 mean, I'm perfectly willing to keep on going. And I have to  
21 figure out exactly how long -- I have an interrupting hearing  
22 tomorrow at 10:00. So I need to figure out -- I'm going to go  
23 back and figure out how long that is going to take. I guess it  
24 is going to be a robust five minutes.

25 MR. CROSS: I will say the nice thing about the video

1 is it is entirely predictable. And I think it is roughly a  
2 little over 25 minutes.

3 THE COURT: We can do that no matter what. I'm not  
4 saying we won't do that. I'm just trying to figure out what  
5 else is left.

6 MR. CROSS: That one we know how long it is going to  
7 be. Thank you, Your Honor.

8 COURTROOM SECURITY OFFICER: All rise.

9 **(A brief break was taken at 5:33 P.M.)**

10 THE COURT: Please have a seat. Do we have  
11 Ms. Payton still here?

12 EXAMINATION

13 BY THE COURT:

14 **Q.** In the November 2018 report that Fortalice produced, you  
15 indicated or Fortalice indicated that it -- that it had  
16 concluded the active testing phase of the external assessment  
17 of looking for a breach during the limited time allowed for  
18 external testing. And it hadn't found -- been able to breach  
19 in that time period.

20 And then you said it should be noted that an external  
21 hacker would not necessarily have a specific time limitation on  
22 external activities, properly noted.

23 So what was the limited time frame that you allocated?

24 **A.** I'm not sure -- I have to look at our rules of engagement  
25 to know. I'm kind of looking out there to see if they -- I

1 can't remember exactly how many days they gave us. But I think  
2 in order to manage their time and money, they -- sometimes  
3 clients put a limit. So they are like you only have X amount  
4 of days to try to access; and when you run out of that, you  
5 need to stop.

6 **Q.** So you don't really have any idea?

7 **A.** I don't remember. I apologize.

8 **Q.** All right.

9 **A.** I don't remember how long they gave us. But they did put  
10 a limitation on it, which is why you see us commenting on that  
11 in here.

12 **Q.** So because it was limited and in that time frame you  
13 hadn't breached, you then assumed the breach and looked at the  
14 question of what you could find -- what you would be able to  
15 access in the event that you had gotten your foot in the door  
16 at all?

17 **A.** Correct.

18 **Q.** I guess that is why it says establish a foothold.

19 **A.** Yes.

20 **Q.** And then you started doing different types of attacks in  
21 order to find that and find vulnerabilities; is that right?

22 **A.** Yes.

23 **Q.** And you were able ultimately to download encrypted  
24 passwords and infiltrate the network and ultimately, as I  
25 understand it, control the domain -- the domain and that meant

1 control the administrative domain?

2 **A.** Yes. The one thing -- and I forget which page it is on.  
3 But the one thing that we did notice was because they had  
4 implemented a platform called Dell SecureWorks, once we started  
5 to try and actually activate our access, Dell SecureWorks  
6 actually saw we were there and triggered an alert. And that is  
7 somewhere in here.

8 **Q.** I saw that. But you still ultimately got to the point  
9 that you were able to --

10 **A.** Yes.

11 **Q.** -- obtain full control of the administrative domain?

12 **A.** Yes.

13 **Q.** And I just wanted to make sure I understood what that  
14 meant.

15 So that would allow -- if you had been a real hacker, you  
16 would have been able to go through other -- gain access to  
17 other systems because you had the administrative domain?

18 **A.** Potentially. Uh-huh (affirmative).

19 **Q.** Okay.

20 **A.** I'm sorry. I was just going to say again it would depend  
21 on how they decided to move. Because if they took sort of the  
22 move action that we did, it is possible Dell SecureWorks would  
23 have shut them down.

24 **Q.** So I'm really still trying to understand actually the  
25 scope of the system that you looked at. I know you didn't

1 actually look -- do this type of testing for the voter  
2 registration programs or data system, which has been another  
3 part of this case.

4 And I gather from the testimony you didn't look at the  
5 connection with the -- the counties?

6 **A.** The dial-up access?

7 **Q.** The dialogue that they were having with 159 basically  
8 registrars' offices that are funneling data back and forth;  
9 right?

10 **A.** Right.

11 **Q.** And did you specifically ever look at an attempt to breach  
12 the Center for Elections security? I guess -- I think that is  
13 the name -- is that what the name CES stands for?

14 Mr. Barnes -- did you specifically ever try to do that?

15 **A.** No.

16 **Q.** So what was it that you were actually attempting to  
17 penetrate and ping at and test at and gain control over?

18 **A.** Yeah. We were looking for what we would call sort of that  
19 master access and making sure it is shut down. That master  
20 access could be something that could be that foothold in the  
21 door to get to election systems or it could be to get to the  
22 Secretary of State of Georgia's other non-kind of  
23 election-facing systems.

24 **Q.** The corporate information?

25 **A.** Yes.

1 Q. And all the things?

2 A. Employee information. Yes. Operational information.

3 So for us, that area has to be secure. And yes. Did we  
4 not look at the other points? We didn't. But we were looking  
5 at sort of like -- almost like you would look at like the  
6 perimeter. So the outskirts of the kingdom versus a specific  
7 vault within a castle, if that makes some sense.

8 Q. No. That is a good analogy.

9 So you're testing the outer -- the outer walls and --

10 A. Yes.

11 Q. But it was outside your scope to really focus in on the  
12 particular issues affecting the management of the elections and  
13 that data --

14 A. Yes.

15 Q. -- or whatever vulnerabilities might be triggered by the  
16 fact that it has got so many -- they have to interface in so  
17 many ways?

18 A. Correct.

19 Q. And you didn't analyze that either as that whole  
20 interface?

21 A. What we were looking for was could anything under the  
22 Secretary of State of Georgia purview -- any of the  
23 different -- the back office operations in addition to the  
24 things that they are responsible for, could we from outside,  
25 you know -- kind of using the kingdom analogy, could we get

1 into the castle? Yes, we can get into the castle. Could we  
2 move around the castle fairly freely? And in some cases the  
3 answer was yes.

4 But we didn't actually red team the election security  
5 hardware and software itself. Yeah.

6 **Q.** Or the data system --

7 **A.** Right.

8 **Q.** -- in terms of just the security of the data system?

9 **A.** Correct.

10 **Q.** Okay.

11 **A.** With the exception of the vendor who does the  
12 registration.

13 **Q.** The registration. But you only had limited access there?

14 **A.** Yes, ma'am. That is correct, Your Honor.

15 **Q.** That's all right. Lots of people call me ma'am here.

16 You did find that Fortalice was able to identify instances  
17 of voter registration data hosted on file shares accessible to  
18 all domain users?

19 **A.** Yes.

20 **Q.** And then you recommended that there be follow-up about  
21 that?

22 **A.** Yes.

23 **Q.** So where was -- and you had a picture here of the absentee  
24 voter report. I don't know whether that was in connection --  
25 this is Page 19 of your report.



1 Did you see absentee voter information? Is that --

2 **A.** Yes. And what I see here -- what we're saying is we  
3 didn't check to see if this was redacted or complete. So was  
4 it old? Was it redacted? Or was it complete? But we did find  
5 it.

6 **Q.** And you found this in -- just simply as you were  
7 penetrating the wall, you found -- somehow it came up?

8 **A.** Yes. So one of the things we look for is do you have  
9 visibility into all of the different data stores. Because a  
10 lot of time people focus on once you get inside the walls, if  
11 you have got unauthorized access -- maybe they don't go after  
12 the official database of record. They start to look for is  
13 there data sprinkled other places within the enterprise. And  
14 that was one of the things we were looking for is did you lose  
15 line of sight to data. Did somebody copy data?

16 Maybe they were trying to have a test data set to test  
17 something and they forgot they left it there. Did they not  
18 follow a process? That is also fairly common. Maybe they were  
19 testing out something new, created this data set outside of a  
20 process, and forgot about it.

21 **Q.** But if I understand the principles of cybersecurity and  
22 hacking -- and, of course, this is not the only place I ever  
23 deal with hacking in this court and cases involving hacking --  
24 what the hacker tries to do is get basically some access? It  
25 might be at some major company just through the HVAC system and

1 then they go from there?

2 **A.** Yes, that is correct. That is what we were looking for  
3 and trying to replicate.

4 **Q.** And when you were evaluating what you said was the  
5 progress they have made, you were really evaluating progress  
6 that the Secretary of State's office as a whole made, not  
7 necessarily relating to election security; right?

8 **A.** Correct.

9 **Q.** When Fortalice came in, was it aware that there had been  
10 this major -- this alleged major breach, which I think it  
11 wasn't just alleged, involving the Kennesaw data and that the  
12 state had only recently taken over the data system -- the voter  
13 data system?

14 **A.** They had -- when we got engaged, we were made aware of  
15 that situation. We always ask are there incidents we should be  
16 aware of that were fairly recent.

17 **Q.** And you are still consulting with the state?

18 **A.** Yes, as needed on projects.

19 **Q.** And do you have any knowledge of what is going on with  
20 respect to the voter registration data that was being handled  
21 by -- I'm sorry -- the acronyms have gotten the better of me at  
22 this hour -- by the vendor PCC -- yeah.

23 **A.** The PCC vendor?

24 **Q.** PCC. Right. Have you any involvement with that?

25 **A.** Not currently.

1 Q. You don't know what is going on there?

2 A. No.

3 Q. When you did the assessment of PCC in the winter of 2018,  
4 that was done by Cloud -- and other things also were a  
5 combination of Cloudburst Security and Fortalice Solutions.

6 Is Cloudburst Security a different company than you and  
7 you just partner up?

8 A. It is. So they had a contract vehicle that made it -- so  
9 they were a prime. But they were really a pass-through prime.  
10 So they had a contract vehicle that made it easy for the  
11 Secretary of State Georgia to get to us.

12 Q. I just want to make sure I understand your finding in that  
13 report from February of 2018 was that the Number 1 ranked risk  
14 was that the software applications of PCC are externally facing  
15 and that meant facing the public?

16 A. Yes.

17 Q. So that they present a much higher risk of being violated;  
18 is that right?

19 A. Yes. The way we look at it is: That kind of the more  
20 points of presence you have to the outside world, that is  
21 another potential window or door that they can break in.

22 Q. Would some version of that principle be applicable when  
23 you are talking about the election system having to connect  
24 with personnel in 159 different counties?

25 A. It can be. So one of the -- one of the things when you

1 allow kind of that remote piece where you have got many  
2 different implementations is you would want to have people,  
3 process, and technology.

4 So you would want to make sure you have very solid  
5 operational security, physical security. Something we had to  
6 do at the White House with our equipment. Our equipment went  
7 everywhere. And so we had a whole like set of proper  
8 procedures that we followed around that equipment before it  
9 even got plugged in or turned on.

10 So you would want to make sure you had that. You want to  
11 make sure everybody is trained up. User security awareness  
12 training. I know the DHS has made the round to the state on  
13 that.

14 Then you would have your cybersecurity points. And to me,  
15 cybersecurity without the people and process is -- it is  
16 just -- you know, just a couple of tools. And it may or may  
17 not stop things. You have got to have all three.

18 THE COURT: All right. Thank you very much.

19 Are there any other questions occasioned by mine?

20 MR. CROSS: Your Honor, could I clarify a couple of  
21 very quick things very briefly?

22 THE COURT: Yes. The time I spent would not be  
23 attributed to anyone.

24 RE-CROSS-EXAMINATION (Further)

25 BY MR. CROSS:

1 Q. Thank you. Very briefly, Ms. Payton. You mentioned you  
2 tested using the analogy of an outer wall or a castle; is that  
3 right? Yes?

4 A. Yes.

5 Q. I'm sorry. You have to answer out loud.

6 A. Sorry.

7 Q. But I just want to make clear: You are not suggesting to  
8 the Court that by assessing that perimeter, that outer wall,  
9 that that included testing all points of access or  
10 vulnerability to the GEMS servers; right?

11 A. That is correct. Yes.

12 Q. Last point, the Court asked some questions of you with  
13 respect to the KSU breach. And I think just to be clear you  
14 didn't do any assessment of the KSU breach; is that right?

15 A. Right.

16 Q. Does your firm have the capabilities to evaluate a breach  
17 like that in terms of what the impact was, how it occurred,  
18 whether there has been any compromise in the system as a  
19 result?

20 A. We do incident response.

21 MR. TYSON: I object to the lack of foundation as to  
22 what the KSU breach is. I think we need to establish that.

23 THE COURT: I think I did. She said she had been  
24 briefed about it when she came on.

25 A. Yeah. They told us -- we always ask if something -- what

1 bad things have happened so that we know. And we are looking  
2 for could it happen again.

3 **Q. (BY MR. CROSS)** So we're clear, we're talking about the  
4 breach that Logan Lamb identified over a six-month period in, I  
5 think it was, maybe 2016 or 2017. Do you remember this? You  
6 understand that is what we're talking about; right?

7 **A.** I believe so, yes.

8 **Q.** But my question is just simply: Your firm has the  
9 capabilities to examine a breach like that and look at how it  
10 occurred and the extent of the vulnerabilities and whether the  
11 system is compromised as a result; right?

12 **A.** Yes.

13 **Q.** The Secretary of State did not engage you to do that;  
14 correct?

15 **A.** No.

16 **Q.** Thank you.

17 REDIRECT EXAMINATION (Further)

18 BY MR. TYSON:

19 **Q.** Also just very briefly, Ms. Payton. The Judge asked you  
20 about Page 19 of your report and voter registration data that  
21 was accessible to users.

22 **A.** Yes.

23 **Q.** Do you know whether documents regarding absentee voters,  
24 Excel spreadsheets are public documents or not?

25 **A.** I don't. I don't know for sure.

1 Q. You talked about the perimeter defense versus the kind of  
2 vaults within that. Were you assigned to go and try to get to  
3 those vaults, or is it -- the process you describe you are  
4 beginning and trying to work the defenses from the outer  
5 perimeter? Can you explain a little bit more about that?

6 A. Sure. Absolutely. You typically are given rules of  
7 engagement. So our rules of engagement were can you break in.  
8 And we already walked through that.

9 And then what types of activity can you do once you break  
10 in. We weren't told to look specifically at GEMS or at that.  
11 So we did sort of the typical looking around, what things can  
12 we access. Right? What doors are unlocked? What could we do  
13 with it? What kind of data is sitting sort of open to other  
14 users that maybe it shouldn't be? And so that is where the  
15 focus was for that particular assessment.

16 Q. And you were asked about the PCC system being public  
17 facing. Are you aware of -- well, for the public-facing side,  
18 are there systems or are there things you are aware about that  
19 voter registration system that would require it to be public  
20 facing?

21 A. Well, in some states, they have it public facing because  
22 they allow you to.

23 MR. CROSS: Objection, Your Honor. Relevance.  
24 Unless she can tie it to Georgia, what other states do doesn't  
25 tell us anything about the requirement here.

1     **A.**     Checking voter registrations and where you are registered  
2     to vote is oftentimes the reason why there is an  
3     external-facing component.

4             THE COURT:   That is fine.

5     **Q.**     **(BY MR. TYSON)**   The last question, Ms. Payton, I know you  
6     said you don't disclose clients.   But have you ever been hired  
7     by Kennesaw State University?

8     **A.**     No.

9             MR. TYSON:   Thank you.

10            THE COURT:   May this witness be excused?

11            MR. BROWN:   No questions.

12            MR. CROSS:   Nothing more, Your Honor.   Nothing more.

13     Thank you.

14            THE COURT:   Thank you very much.

15            MR. CROSS:   Thank you, Ms. Payton.

16            If Your Honor is up for it, we can play Dr. Shamos.

17            MR. RUSSO:   Your Honor, I was going to actually segue  
18     right into that.   The state defendants -- we never received the  
19     designations of Dr. Shamos' video testimony to put up our own  
20     video today.   We could do that, of course, in our case in chief  
21     tomorrow, which is -- that would be fine.

22            THE COURT:   That is fine.

23            MR. RUSSO:   Additionally --

24            THE COURT:   I mean, it would be obviously better to  
25     do the whole thing at once.   But people might all fall asleep



1 as it is. So 25 minutes might be as much as anyone can stand.

2 MR. RUSSO: We can do them all tomorrow if they  
3 wanted to give us --

4 THE COURT: I'm afraid you're going to run out of  
5 time. I'm trying to think about as it is when we will begin.  
6 I know I have a hearing at 10:30 that will last about, I'm  
7 told, half an hour approximately.

8 But I'm trying to figure out how early we need to  
9 begin. I felt like we should get through with the beginning  
10 here. And then if it makes more sense later on right away to  
11 show the rest of his tomorrow morning, we can do that too.

12 MR. RUSSO: Okay. And additionally, Your Honor, the  
13 IT -- Court's IT staff has let us know that they have set up  
14 his Skype availability for 11:30 tomorrow.

15 THE COURT: But we have told them also we don't know  
16 that we're going to be really ready or that we're going to do  
17 it.

18 So I mean, I basically thought the way I was -- I  
19 don't know when Dr. Halderman is going to testify. But I  
20 thought my ruling was sort of tied to what he was going to say.  
21 Maybe it is fine also.

22 I don't know whether -- I think he's the only of your  
23 tech experts -- well, you have Mr. Bernhard too. Would his  
24 testimony be relevant to be potentially --

25 MR. BROWN: To Dr. Shamos?

1 THE COURT: Yes.

2 MR. BROWN: I think Dr. Halderman would be the most.

3 THE COURT: Because I think I have to make an  
4 assessment. I don't know. Maybe there is something brand-new  
5 he is going to say. If it is not, then we probably won't hear  
6 from Dr. Shamos and you can designate his testimony and I can  
7 also read parts of his testimony.

8 I mean, I'm happy to listen to parts of it. But if  
9 it ends up being more -- so substantial, then I would rather  
10 read it. And I think you know me well enough that I will read  
11 it.

12 MR. RUSSO: Yeah. I think, of course, the issues --  
13 I don't know what time we're starting tomorrow. 11:01?

14 THE COURT: No. I think we should start earlier so  
15 that we are sure that we are through. But --

16 MR. BROWN: Earlier and then break for your hearing?

17 THE COURT: That is right. I think we should get at  
18 minimum an hour in.

19 MR. RUSSO: I guess my concern is we run into that  
20 11:30 time frame. I don't know what time --

21 THE COURT: I know. But that is -- and it seemed  
22 difficult to make it by 11:30 is what I'm saying here even if  
23 you wait to show Shamos' testimony because you want to get to  
24 him. You still -- is Dr. Halderman your next witness or not?

25 MR. CROSS: No, he was not. Because he needs to

1 really follow Mr. Finley.

2 THE COURT: Mr. Finley?

3 MR. CROSS: Yes. So --

4 THE COURT: What is the subject of Mr. Finley's  
5 testimony? I'm sorry.

6 MR. CROSS: He principally is going to talk about  
7 feasibility. But Dr. Halderman has some pieces with respect to  
8 at least the electronic portion of that. And so we wanted to  
9 do Mr. Finley and then Dr. Halderman.

10 I will tell you, Your Honor -- I mean, obviously they  
11 will confirm this themselves during the hearing. There is  
12 nothing -- there is nothing we expect Dr. Halderman to testify  
13 to that is not within the scope of his declaration, other than  
14 responding perhaps to things he has heard today in the  
15 courtroom. Even that would be discrete points. And so there  
16 is no new analysis. There is nothing like that.

17 THE COURT: Well, it doesn't seem, frankly, that  
18 we're going to be ready for rebuttal to the extent he is  
19 testifying on rebuttal at 11:30. That is where he is at six  
20 hours later; right? Or five hours later?

21 MR. CROSS: I don't think we know where he is.

22 MR. RUSSO: He is in Wyoming.

23 THE COURT: He is in Wyoming. I thought it was --

24 MR. RUSSO: It is close to being in a house out in  
25 the country.

1           THE COURT: All right. Well, I'm sure that he  
2 desires just to be enjoying the mountains. So I would rather  
3 let him know that it -- that 11:30 doesn't seem realistic at  
4 this point. But I don't know what his -- his contact is. I  
5 mean, if it happens, it is not -- I hate to have him in the  
6 last part of his vacation jacked around.

7           MR. RUSSO: I have -- I mean, one proposal might  
8 be -- and I don't know if this would be amenable. But if they  
9 could put up Finley tonight and they could give us the  
10 designations for their Shamos' video, we could then do the  
11 counter-designations -- we could put that off until tomorrow.  
12 And then Halderman would be the first one in the morning to go.  
13 And that way if there was time and there was a need for  
14 Dr. Shamos, that would fit within the schedule with the Court's  
15 IT.

16           MR. CROSS: The challenge, Your Honor, is two-fold.  
17 One, this keeps happening. We had an agreement. They asked  
18 about designations. My response -- I think this is a week  
19 ago -- was we'll just do our video, you create your video,  
20 we'll play ours, and you play yours. Because it was just -- no  
21 one was going to be able to figure out these until -- I mean,  
22 we were literally finishing this last night. It is frustrating  
23 to keep running into this problem because we had an agreement  
24 on it.

25           The other problem is no matter how you configure

1 things you're not going to get Dr. Halderman on the stand  
2 before 11:30. We're just moving pieces around.

3 THE COURT: All right. I think you just need -- I  
4 don't know what is going to happen, whether he is necessary.  
5 If you would -- you are going to have plenty of time to reach  
6 him. If he is still in Wyoming, that is two hours' difference  
7 earlier.

8 So it is more that -- is the Skype from his home --  
9 or it is not a Skype. Is the connection from his being at his  
10 house or someplace else? Does anyone know?

11 MR. RUSSO: I think it is someplace else. He lives  
12 in Pittsburgh.

13 THE COURT: Well, I know that. But he lives --

14 MR. RUSSO: He doesn't have a second house that I'm  
15 aware of.

16 THE COURT: No. But -- all right. Let's just go  
17 ahead and deal with the Shamos -- showing it now. I'm just  
18 trying to deal with what we can -- I don't know whether Mark  
19 has indicated where the connection was going to be.

20 COURTROOM DEPUTY CLERK: It is from where Mr. --  
21 Dr. Shamos is.

22 THE COURT: Where he is living? Where he is staying  
23 right now?

24 COURTROOM DEPUTY CLERK: Where he is staying.

25 THE COURT: I don't think we will have a problem. It

1 is not like he is having to go to some office and get there.

2 MR. RUSSO: I understand.

3 THE COURT: And so let's just proceed. And then  
4 please indicate though as you proceed where you are beginning  
5 so they can at least follow along.

6 MR. CROSS: We actually -- I have a hard copy that we  
7 can give them. But why don't we go ahead and start, and I can  
8 hand that to them.

9 So obviously our next witness, Your Honor, is  
10 Dr. Michael Shamos.

11 THE COURT: Do you want this in the transcript? Are  
12 you jumping around? Because if you are jumping around, I'm  
13 going to ask --

14 MR. CROSS: It goes -- it is excerpts. But it goes  
15 in order through the transcript. And, again, we have a hard  
16 copy. And so I can provide that. We can even put that into  
17 the record.

18 THE COURT: Well, let's put that into the record.  
19 Because last time I was trying to find things in one of these  
20 and I couldn't find it. It will be easier than having the  
21 court reporter at this last moment try to follow it.

22 MR. CROSS: We'll find it.

23 THE COURT: Then if the defendant would also do the  
24 same. Provide me with a copy of the pages that you plan to  
25 introduce. And we'll make it part of the record, not just

1 having it for my benefit. But we'll actually have it --

2 MR. CROSS: Yes, Your Honor. Why don't we start and  
3 then I'll find -- there it is. Yes.

4 Ready?

5 THE COURT: Ready.

6 **(The videotaped deposition of MICHAEL SHAMOS,**  
7 **Ph.D., was played for the Court.)**

8 THE COURT: Are you going to -- do you have a copy  
9 now, or are you going to introduce it tomorrow?

10 MR. CROSS: My only copy is the one I gave Mr. Russo.  
11 So we'll bring it tomorrow.

12 THE COURT: That is fine. Be sure to bring us an  
13 extra copy too, besides whatever you are introducing into the  
14 record.

15 So we're going to end today. And as courtesy to the  
16 audience, we have some housekeeping. You are welcome to leave.  
17 I'll give you a minute if you are wanting to leave now. It  
18 will be disruptive if you leave before -- otherwise, you have  
19 got to wait for a few minutes. Sort of like leave now or  
20 forever hold your peace until we are through in a few minutes.

21 All right. So tell me what witnesses you are  
22 producing tomorrow.

23 MR. CROSS: For the Curling plaintiffs, it is Alex  
24 Halderman and Lowell Finley. And I think those are the only  
25 two remaining witnesses for us, Your Honor.

1 THE COURT: Where are you on your time, according to  
2 your folks?

3 MR. CROSS: 208 minutes. We were thinking roughly  
4 300 or 330, if it was five to five and a half hours.

5 MR. BROWN: Then Coalition plaintiffs have Matt  
6 Bernhard and Virginia Martin for about 40 minutes.

7 THE COURT: Well, have you allocated time for  
8 yourself to cross-examine their folks --

9 MR. BROWN: Yes.

10 THE COURT: -- in that? And you are expecting -- so  
11 you want to have Mr. Finley and then you want to have --

12 MR. BROWN: It will probably be Finley, Martin,  
13 Halderman.

14 THE COURT: I'm sorry?

15 MR. BROWN: Martin, Finley, Halderman.

16 THE COURT: I didn't get the first one because now  
17 you are including a third person.

18 MR. BROWN: There's four witnesses that the  
19 plaintiffs collectively have left.

20 THE COURT: All right.

21 MR. BROWN: And that is Martin, Finley, Halderman,  
22 and Bernhard and probably in that sequence. Not all the same  
23 length. Halderman will be a little bit longer than the other  
24 ones.

25 THE COURT: You had him originally down for an hour.



1 I assume you are --

2 MR. CROSS: We have truncated all of these over the  
3 course of -- in our prep and again as we prepare for tomorrow,  
4 yes, Your Honor.

5 THE COURT: All right. And --

6 **(There was a brief pause in the proceedings.)**

7 MR. CROSS: 208 minutes.

8 THE COURT: What did you think? Does anyone have  
9 what the --

10 MR. RUSSO: We had an hour and 37 minutes remaining  
11 for plaintiffs.

12 MS. CHAPPLE: We said we had 208 total so far. Not  
13 remaining.

14 **(There was a brief pause in the proceedings.)**

15 THE COURT: You have an hour and 37 minutes. Hour  
16 and 37 minutes left is what you have? Is that what you are  
17 saying? I'm sorry.

18 MR. CROSS: Oh, I'm sorry.

19 THE COURT: I'm just trying -- you are saying that  
20 you-all have an hour and 37 minutes including time that you  
21 might need for cross-examination of any of their witnesses?

22 MR. CROSS: Yes.

23 THE COURT: You better fly.

24 MR. CROSS: They only have four witnesses, Your  
25 Honor.

1 MR. RUSSO: We have three hours. By our count, we  
2 have three full hours left for state defendants then.

3 THE COURT: Who do you have?

4 MR. RUSSO: We have three elections directors. I  
5 guess four also with Mr. Barron. And then Dr. Shamos' video.

6 THE COURT: Do you have any thought of how long you  
7 are going to be using Dr. Shamos' video?

8 MR. RUSSO: Not yet, Your Honor.

9 THE COURT: All right. Well, I wish I could tell you  
10 more about Dr. Shamos. I haven't heard -- you know, here is  
11 the thing. It is that -- you know, as the court discussed in  
12 *Flame vs. Industrial Carriers*, Norfolk Division of the Eastern  
13 District of Virginia, in 2014, one big factor still is it is  
14 better to see the person -- the witness in person.

15 But here it is more than that. The state had  
16 Dr. Shamos on retainer for some amount of time. We knew this  
17 case was moving forward. And he explicitly stated with respect  
18 to renewing his engagement with the state that if it was the  
19 last week of July, which that is where we are at, he wasn't  
20 available. And the state decided it nevertheless wanted to  
21 keep him as a witness. And that is your choice.

22 And, you know, I stick by what I said earlier. If  
23 there is something new that arises in Dr. Halderman's testimony  
24 that requires rebuttal that was not addressed already that you  
25 can't bring to my attention in his relatively lengthy

1 declaration, which you are welcome to do or in the -- in the  
2 testimony itself, I'll certainly consider it.

3 But I know it is inconvenient for him. But this is  
4 sort of where we're at. And, you know, I think he's a  
5 sophisticated witness from my observation. And he also went --  
6 did go in great detail in analyzing each of the experts and  
7 talking about their testimony and other people too and opined  
8 on many other things as well. So it is not like he confined  
9 his opinions in any way.

10 So it just would have to be something that really  
11 jumped out. And I don't think it will take much time if that  
12 is so.

13 MR. RUSSO: Your Honor -- oh, I'm sorry.

14 THE COURT: But, anyway, that is my view. And I -- I  
15 sort of dealt with this in a truncated way in the beginning  
16 just to let you know where I was at.

17 But his engagement letter was on June 24th. But I  
18 think that you-all decided to proceed. And I just -- while it  
19 is true that people of -- that election security experts -- but  
20 he may be -- he is not really a forensic examiner in this  
21 context. He has -- but this sort of topic are not a dime a  
22 dozen. But, in fact, much to my education through the course  
23 of this case, there are, in fact, a significant number of  
24 people in this field and there are a lot of election centers in  
25 all of these different -- and IT programs in law school.

1           So, anyway, that is where we're at. I don't want to  
2 deprive you of something unfairly. But I also feel like I have  
3 an ample record. And now that I'm being told that there is not  
4 any bombshells about to go off, I'm more confident than ever.  
5 But, you know, we'll see.

6           MR. CROSS: Your Honor, could I ask one entirely  
7 selfish motivated question?

8           THE COURT: Yes.

9           MR. CROSS: Last year, Your Honor decided not to do  
10 closings. You felt like you didn't need it. I had what was  
11 the most amazing and dazzling closing prepared for you that I  
12 did not go to bed for.

13          THE COURT: I'm so sorry.

14          MR. CROSS: And I think it would have changed the  
15 outcome of the case. I'm convinced of that. But apart from  
16 that, Your Honor, do you have an instinct -- because it will  
17 help us know whether we should be preparing something like  
18 that.

19          THE COURT: Well, to some extent, we're dealing with  
20 time. You know, I will allow you to do something. But it  
21 is -- but whether we're going to be able to have closing  
22 arguments that go on for any length of time, i.e., 30 or 40  
23 minutes apiece versus 20 minutes -- 15 or 20 minutes is  
24 something else.

25          I mean, I -- here is my concern. It may be that I

1 have more questions than anything else, like everyone else who  
2 is in this position. I know it is a difficult case. There  
3 might still be factual issues I'm not clear about or  
4 evidentiary issues.

5 And yes, I have to go on the record. But if it is  
6 really important, I don't desire just to be struggling with it  
7 if I could actually address it. You know, I'm kind of the fact  
8 queen. So I like to know. And that is why I end up asking  
9 questions of the people who are experts also and anyone else if  
10 I don't understand something and drag poor Mr. Barnes back  
11 here. So --

12 MR. CROSS: That was my --

13 THE COURT: You could plan. But let me just say, if  
14 we get to 6:00, it is going to be hard to keep everyone's  
15 attention here.

16 MR. CROSS: What you had outlined is kind of what I  
17 was thinking. That instead of having a big prepared thing,  
18 we'll be available to answer questions and maybe just hit the  
19 highlighted facts for you in some truncated way.

20 THE COURT: You know, I might have some questions  
21 about -- to the extent we're dealing with relief issues, which  
22 I understand that is a big focus for the -- as always of the  
23 state and Fulton County, I think that that -- that is a real  
24 issue.

25 And one of the things that clearly I will just say in

1 terms of where -- my wonderings is I don't -- I'm still very --  
2 I still have worries about the voter -- the integrity of the  
3 voter data system. That has not been the first and foremost  
4 focus of the system. But, you know, that has been a focus of  
5 my -- what I have addressed.

6 And it is something that is actually clearly within  
7 the state's control. So it might be helpful to -- for me to  
8 understand that better.

9 We have an issue that the state wanted to talk about  
10 later on. I would like counsel just to stick around so I can  
11 ask about that as well today.

12 MR. CROSS: Thank you, Your Honor.

13 THE COURT: Is there anything else?

14 MR. CROSS: When you say stick around, you want us to  
15 stick around?

16 THE COURT: Because if you do closing argument, then  
17 you surely will want to be leaving. And I will too.

18 MR. RUSSO: That is fine with us.

19 MR. CROSS: We'll stick around.

20 THE COURT: All right. I would just like counsel  
21 alone to stick around though for now. I mean, anyone else can  
22 stay out in the hall a little bit.

23 MR. CROSS: You said tomorrow you wanted to get in an  
24 hour early. Do you want to start out --

25 THE COURT: I think we need to start -- so that you

1 could have that opportunity, I think we need to start at 9:30.  
2 We'll go for an hour. I have a -- the reason I can't move the  
3 hearing is it is a class action settlement and the notices have  
4 already -- were sent four months ago to class members if they  
5 had objections.

6 MR. RUSSO: Your Honor, would it be possible for us  
7 to leave some of the papers?

8 THE COURT: You can leave everything and anything as  
9 long as it is not a security risk.

10 MR. RUSSO: Everybody will be happy about that on  
11 both sides.

12 MR. KNAPP: Thank you, Vincent.

13 THE COURT: Anything else?

14 MR. CROSS: No, Your Honor.

15 THE COURT: Well, I'm going to just stick around  
16 until everyone vacates. Or if you need to use the restroom, do  
17 that and come back while they are vacating.

18 **(There was a brief pause in the proceedings.)**

19 THE COURT: We have only counsel in the courtroom  
20 here? Anyone who is not, would you just vacate for a few  
21 minutes.

22 And I'll ask counsel to please look around and make  
23 sure that this is so. All right. Have a seat or stand. I  
24 don't really care. You have been sitting a long time.

25 But I had asked about the status of the RFP and

1 plaintiffs asked, if I understood, to be part of that  
2 conversation. I wasn't clear what the defendants' position  
3 about that was.

4 I want to go off the record about this. So -- but I  
5 have failed to get off the record before. I'm just formally  
6 going off the record, and we're closing today.

7 **(A discussion ensued off the record at 7:17**  
8 **P.M., and then the proceedings were thereby**  
9 **adjourned for the evening.)**

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C E R T I F I C A T E

UNITED STATES OF AMERICA  
NORTHERN DISTRICT OF GEORGIA

I, SHANNON R. WELCH, RMR, CRR, Official Court Reporter of the United States District Court, for the Northern District of Georgia, Atlanta Division, do hereby certify that the foregoing 312 pages constitute a true transcript of proceedings had before the said Court, held in the City of Atlanta, Georgia, in the matter therein stated.

In testimony whereof, I hereunto set my hand on this, the 2nd day of August, 2019.

*Shannon R. Welch*

\_\_\_\_\_  
SHANNON R. WELCH, RMR, CRR  
OFFICIAL COURT REPORTER  
UNITED STATES DISTRICT COURT

1 IN THE UNITED STATES DISTRICT COURT  
2 FOR THE NORTHERN DISTRICT OF GEORGIA  
3 ATLANTA DIVISION

4 DONNA CURLING, ET AL., :  
5 :  
6 PLAINTIFFS, :  
7 vs. : DOCKET NUMBER  
8 : 1:17-CV-2989-AT  
9 BRAD RAFFENSPERGER, ET AL., :  
10 :  
11 DEFENDANTS. :

12 **TRANSCRIPT OF HEARING ON PRELIMINARY INJUNCTION PROCEEDINGS**  
13 **BEFORE THE HONORABLE AMY TOTENBERG**  
14 **UNITED STATES DISTRICT JUDGE**

15 **JULY 26, 2019**

16 **9:37 A.M.**

17 **VOLUME 2 OF 2**

18 ***MECHANICAL STENOGRAPHY OF PROCEEDINGS AND COMPUTER-AIDED***

19 ***TRANSCRIPT PRODUCED BY:***

20 ***OFFICIAL COURT REPORTER: SHANNON R. WELCH, RMR, CRR***  
21 ***2394 UNITED STATES COURTHOUSE***  
22 ***75 TED TURNER DRIVE, SOUTHWEST***  
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**P R O C E E D I N G S**

**(Atlanta, Fulton County, Georgia; July 26, 2019.)**

THE COURT: Please have a seat. Who is the plaintiffs' next witness?

Good morning.

MR. POWERS: Good morning, Your Honor. John Powers representing the Coalition plaintiffs.

THE COURT: Yes.

MR. POWERS: The plaintiffs call Dr. Virginia Martin, election commissioner for Columbia County, New York.

COURTROOM DEPUTY CLERK: Please raise your right hand.

**(Witness sworn)**

COURTROOM DEPUTY CLERK: Please have a seat. Loudly and clearly state your full name, and spell your last name for the record, please.

THE WITNESS: Virginia Martin, M-A-R-T-I-N.

Whereupon,

DR. VIRGINIA MARTIN,

after having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. POWERS:

**Q.** Good morning, Dr. Martin.

**A.** Good morning.

**Q.** Dr. Martin, what is your current occupation?



1 **A.** I'm the Democratic election commissioner in Columbia  
2 County, New York.

3 **Q.** Dr. Martin, how long have you been serving in that role?

4 **A.** Since December of 2008.

5 **Q.** And, Dr. Martin, how many staff members do you oversee?

6 **A.** In my office, I oversee three full-time and one part-time  
7 person. And I will say I also oversee temporary workers --  
8 election workers numbering about 150.

9 **Q.** Per election?

10 **A.** Yes.

11 **Q.** And, Dr. Martin, could you please inform the Court about  
12 your duties and responsibilities as election commissioner.

13 **A.** Yes. As election commissioner, I represent one half of  
14 the county board of elections. Our boards of elections are  
15 bipartisan. And the board of elections is myself as Democratic  
16 commissioner, and my counterpart is Republican commissioner  
17 Jason Nastke.

18 So we are responsible for everything related to voter  
19 registration, keeping the voter rolls current and accurate,  
20 determining what candidates get on the ballot, and running  
21 elections.

22 **Q.** Thank you. And, Dr. Martin, have you received any  
23 certifications related to election administration?

24 **A.** Well, the one that comes to mind concerns HAVA, Help  
25 America Vote Act, polling place accessibility, which I received

1 from the Independent Living Center of New York.

2 **Q.** Thank you. And, Dr. Martin, do you have experience in  
3 transitioning an election system to a primarily hand-marked  
4 paper ballot system?

5 **A.** Yes.

6 **Q.** Dr. Martin, were you responsible for overseeing that  
7 transition to hand-marked paper ballots?

8 **A.** With my counterpart, yes.

9 **Q.** And tell me about your role in implementing the  
10 transition.

11 **A.** We were responsible for making sure that all the  
12 procedures that we needed for voters and for poll workers were  
13 in place, were understandable, were clear and accessible.  
14 Making sure that the optical scanners, which we use, were  
15 programmed properly; that we had staff that knew how to do that  
16 because we do all the programming in our county; to make sure  
17 that we had all the ballots that we needed; to make sure that  
18 the elections ran accurately and without incident and in a way  
19 that was -- in a way that was good for the voters, that the  
20 voters felt comfortable with; and made sure that the election  
21 results after the fact were accurate. And we did that by doing  
22 a hand count of all the ballots centrally after the election.

23 **Q.** Thank you. And, Dr. Martin, could you tell the Court  
24 about the time frame of New York's transition to hand-marked  
25 paper ballots.

1 **A.** New York -- excuse me -- did not transition to -- excuse  
2 me --

3 THE COURT: Do you need some water?

4 THE WITNESS: Yes. Thank you.

5 **A.** -- made the transition in 2009 and 2010. And it spent a  
6 fair amount of time determining exactly which machines to use.  
7 So there were a number of counties in New York State that  
8 transitioned to optical scanners from lever machines, which is  
9 what we had been using and they did that in 2009 -- in  
10 September of 2009. Other counties such as mine did not make  
11 the transition until September 2010.

12 **Q.** (BY MR. POWERS) And what was the time frame for many of  
13 the other counties that you referenced in New York?

14 **A.** Many of -- most of the counties in New York State did a  
15 pilot in September 2010. And that was based on an order of the  
16 Court that was issued in early June.

17 **Q.** So roughly how many months?

18 **A.** Roughly June, July, August, September. Three months.

19 **Q.** Thank you. And, Dr. Martin, have you been called on to  
20 confer with and advise election integrity experts, other  
21 election officials, and advocates about the feasibility of  
22 transitioning to conducting elections by hand-marked paper  
23 ballot?

24 **A.** Certainly.

25 **Q.** And could you tell the Court about that.

1 **A.** Yes. I have been -- I was questioned by the Colorado  
2 Secretary of State when they were in the process of  
3 transitioning to their risk-limiting audits. And they were  
4 very interested in how we do our audits. I was invited to  
5 attend a risk-limiting audit pilot project by the Rhode Island  
6 State Board of Elections in January of this year.

7 I'm often called upon to make presentations about how it  
8 is that we do our hand counts and run our elections generally  
9 speaking. I did a presentation for the Election Verification  
10 Network a couple of years ago for them showing them exactly how  
11 we do that and followed that up with a conference call for  
12 others in the network.

13 And I often get phone calls from people across the country  
14 who are just interested in knowing how it is that we are able  
15 to successfully do a very robust hand count of our paper  
16 ballots.

17 **Q.** Is Columbia County's method considered kind of a model for  
18 other jurisdictions moving to hand-marked paper ballots?

19 **A.** Apparently because I get phone calls all the time and many  
20 requests to speak and present.

21 **Q.** And are the practical and logistical issues relating to  
22 the conduct of hand-marked paper ballot elections similar  
23 across different jurisdictions in the United States?

24 **A.** Certainly.

25 MR. BELINFANTE: Objection. There has been no

1 foundation at least as it relates to Georgia. She hasn't  
2 mentioned the word Georgia in any of her testimony thus far in  
3 her experience.

4 THE COURT: Why don't you reframe the question.

5 **Q. (BY MR. POWERS)** Dr. Martin, when you are speaking with  
6 election officials and experts around the country, what are the  
7 practical and logistical issues relating to the conduct of  
8 hand-marked paper ballot elections that you talk about?

9 **A.** Well, the issues are having enough ballots, determining  
10 how many ballots one needs, how to secure those ballots before  
11 and after voting, how to maintain a very secure chain of  
12 custody until the election is certified, how to confirm that  
13 the result is accurate.

14 Most people -- most states that use hand-marked paper  
15 ballots also use optical scanners. So they have the ballots  
16 and the votes tabulated on the optical scanners. And what  
17 people are interested in is the way that we do our hand count  
18 audit after the fact.

19 So it is all about how we keep all those ballots safe and  
20 secure, how the audit is conducted, how it is transparent so  
21 that anybody can see it. And, frankly, the -- well, the public  
22 transparency is a big piece of it as well that the people are  
23 interested in.

24 **Q.** Dr. Martin, you have spoken with election officials in  
25 other jurisdictions implementing hand-marked paper ballots?

1 **A.** Yes, I have.

2 **Q.** And what are the core foundational elements of the  
3 hand-marked paper ballots that are common across those  
4 different jurisdictions?

5 **A.** Well, the ballots are all pretty much the same. There  
6 isn't much difference there. They have to be marked with a  
7 pen. There isn't much difference there. They have to be  
8 accounted for. That is very important. They have to be  
9 counted, which, as I said, is usually done on an optical  
10 scanner. And really there should be a very robust hand count  
11 audit after the fact.

12 It is mostly about chain of custody and making sure you  
13 get the count right.

14 **Q.** And, Dr. Martin, have you submitted three declarations in  
15 this case?

16 **A.** I have.

17 **Q.** And do you still hold the opinions expressed in those  
18 declarations?

19 **A.** I do.

20 **Q.** Let's turn to the methods that you're employing in  
21 Columbia County. Can you tell me about Columbia County's  
22 method of tabulating and counting hand-marked paper ballots  
23 cast on election day?

24 MR. BELINFANTE: Objection, Your Honor. I would move  
25 that it is irrelevant for the same reason that it was discussed

1 yesterday in Ms. Payton's deposition. We're not talking about  
2 Georgia. I fail to see the relevance of this witness  
3 testifying about what is happening in one county in New York.

4 MR. POWERS: We proffer --

5 THE COURT: All right. I mean, the thing about it is  
6 this: The state has made a big deal about these are not  
7 feasible alternatives. And I think that it is relevant for  
8 that purpose.

9 My concern is something different. And this is  
10 now -- I'll just again -- I'm going to go on my time and not  
11 your time.

12 But even if I were to give the plaintiffs extra time  
13 because I want to get to the bottom of the issues, because I  
14 have the witness' affidavit in front of me, is there something  
15 in particular that you want to focus on so that I'm not --  
16 we're not wasting time?

17 As I recall, there was at least technically only an  
18 hour-plus left in the plaintiffs' time. And I'm concerned that  
19 there are a lot of issues left. So I urge counsel to chat for  
20 a moment and decide this. Because the Court has a lot of  
21 weighty issues in front of it.

22 And if I'm going to end up having to give any extra  
23 time at all to plaintiffs, I don't want it to be because you  
24 squandered the time here. It is not to say that the witness'  
25 testimony is not important. But there is the affidavits.

1                                   **(There was a brief pause in the proceedings.)**

2                   MR. POWERS: Your Honor, we've conferred, and there  
3 are two discrete areas I would like to focus on.

4                   THE COURT: All right.

5           **Q. (BY MR. POWERS)** Dr. Martin, I would like to turn to the  
6 subject of pollbooks for a second.

7           **A.** Uh-huh (affirmative).

8           **Q.** Dr. Martin, does Columbia County currently employ paper  
9 pollbooks?

10          **A.** Yes, we do.

11          **Q.** And is Columbia County going to be moving in the near  
12 future to electronic pollbooks?

13          **A.** Yes, we are. By legislation enacted this year, we will  
14 start doing early voting this year. And as a result, we are  
15 going to be using electronic pollbooks at least for our early  
16 voting. And we are still undecided as to whether we will use  
17 them on election day.

18          **Q.** And to be clear, Dr. Martin, Columbia County will still be  
19 employing paper pollbooks in conjunction with electronic  
20 pollbooks?

21          **A.** Absolutely. Commissioner Nastke and I are very firm on  
22 this, that we want to have both pollbooks available. And we  
23 will have voters sign in to both pollbooks.

24          **Q.** And what are the benefits of that particular approach of  
25 having dual pollbook systems?



1 **A.** Well, we really haven't had any problem with our paper  
2 pollbook system. We know that there have been problems with  
3 electronic pollbooks in different jurisdictions. We typically  
4 like to be -- well, I shouldn't say typically. We definitely  
5 do not like relying on electronic processes. So we always --  
6 whenever we can, we rely on paper, which is why we do the  
7 extensive hand count audit that we do. So we will be relying  
8 on the paper pollbooks, as well as the electronic pollbooks.  
9 They can go down. They can -- there can be problems.

10 **Q.** Dr. Martin, can you talk about the time frame in which  
11 this switch to the dual pollbooks system is going to be  
12 implemented?

13 **A.** It will be implemented for our early voting, which begins  
14 on, I think, October 26th. So we have a few months to  
15 determine who the vendor will be. We had chosen a vendor who  
16 dropped out last week. So now we're starting the search all  
17 over again. And we will have to determine what books we're  
18 going to use, how they get used to develop our instructional  
19 materials. And that is what we do.

20 **Q.** **(BY MR. POWERS)** Thank you. The last subject I would like  
21 to address with you is the county's transition --

22 **A.** Uh-huh (affirmative).

23 **Q.** -- to hand-marked paper ballots from the mechanical  
24 system.

25 Dr. Martin, what practical logistical steps did you take

1 during the first couple of elections using hand-marked paper  
2 ballots to ensure things went smoothly?

3 **A.** We used the procedures and documentation that was provided  
4 to us by the State Board of Elections, and we studied it very  
5 carefully. We made modifications where we thought it was  
6 appropriate and where it seemed to make sense for our county.

7 You know, we did training with our inspectors. And we  
8 learned where inspectors needed a little bit more -- a little  
9 more of this, a little bit less of that. We continually made  
10 modifications.

11 We did -- then we did training with our inspectors. We  
12 took the optical scanner voting machines around the county, and  
13 everybody got to work with them.

14 THE COURT: What is an inspector?

15 THE WITNESS: I'm sorry?

16 THE COURT: In your type of work, what is an  
17 inspector?

18 THE WITNESS: An inspector is a poll worker, yes.

19 **Q. (BY MR. POWERS)** I'm sorry. What steps practically  
20 speaking do you advise election officials undertaking similar  
21 transitions to take to make sure that the transition goes  
22 smoothly in their jurisdictions?

23 **A.** Really to think about all the people that are going to be  
24 affected: The voters, the poll workers, the administrators,  
25 the staff in the office. To think very carefully about the

1 chain of custody of all the election materials. We do a really  
2 good job in Columbia County with the chain of custody. To  
3 consider that.

4 To consider the security of all the materials. And to  
5 make sure that if you are relying on a technological electronic  
6 process that there is some sort of backup, there is some sort  
7 of very strong audit system to make sure that it worked right,  
8 and that if it fails there is another way -- there is always a  
9 Plan B. Sometimes it is in effect anyway.

10 **Q.** Are there resources that jurisdictions transitioning to  
11 hand-marked paper ballots can draw on?

12 **A.** Well, yeah. Certainly in New York State, we were --  
13 although we were one of the last states to give up our lever  
14 voting machines and move to an electronic method of voting, we  
15 had the benefit of many other states' experience.

16 So we were able to -- I will say the State Board of  
17 Elections was able to draw on that and I think did a very  
18 excellent job in choosing machines and making sure that all --  
19 that the machines worked the best way absolutely possible.

20 So the state provides many -- very good instruction and  
21 procedures for us. And I think any state that is considering  
22 making a move has the benefit of all of these other states that  
23 have gone before them.

24 And certainly I am a resource as well. You know, many  
25 people reach out to me as a resource. And I provide our

1 documentation and our methods. And they seem to be very  
2 grateful for that.

3 **Q.** During the --

4 THE COURT: Are you through? I'm just really trying  
5 to move this along.

6 MR. POWERS: Yes.

7 Thank you. No further questions.

8 THE COURT: If there is something vital but it just  
9 seems like we're -- thank you.

10 MR. BELINFANTE: Your Honor, I would move to strike  
11 the entire testimony as irrelevant. She has not offered even  
12 an opinion on whether this will be feasible in Georgia or any  
13 underlying facts about Georgia at all.

14 THE COURT: I deny the motion. Let's proceed.  
15 Who is your next witness?

16 MR. BELINFANTE: I was going to cross-examine.

17 THE COURT: I'm sorry. I thought that was the  
18 totality of what you wanted to say is it is irrelevant. The  
19 totality is it is irrelevant and therefore --

20 MR. KNAPP: We approve that motion.

21 THE COURT: Go for it.

22 CROSS-EXAMINATION

23 BY MR. BELINFANTE:

24 **Q.** Good morning, Ms. Martin.

25 **A.** Good morning.

1 Q. Your experience as an election official has been limited  
2 to New York; correct?

3 A. Yes.

4 Q. And limited to Columbia County, New York?

5 A. Well, I certainly interact with a lot of other election  
6 officials in New York.

7 Q. Right. I'm sorry. But your position has been always in  
8 Columbia County?

9 A. My position has been in Columbia County.

10 Q. And Columbia County -- what is approximately the  
11 population of Columbia County?

12 A. About 63,000 people.

13 Q. Okay. Do you know of any Georgia counties offhand that  
14 are roughly the same population?

15 A. I'm sure there are. I know there are a lot of Georgia  
16 counties. Very small to very large.

17 Q. You have not done any kind of comparison comparing  
18 Columbia County to a Georgia county, have you?

19 A. How would I make that comparison? Between numbers of  
20 people?

21 Q. So is the answer no, you have not compared what -- you  
22 have not -- you have not compared what you have done in  
23 Columbia County to any county in Georgia; is that right?

24 A. Not specifically to any county in Georgia. But I am aware  
25 of what Georgia counties do. So whether large or small, I'm

1 not sure that it makes a difference.

2 **Q.** When you say what Georgia counties do, what do you mean  
3 specifically?

4 **A.** How they run their elections, how their machines are  
5 programmed, how their ballots are counted, how voters vote.

6 **Q.** Do you have personal knowledge of how machines are done in  
7 Georgia?

8 **A.** I have not come down to an election and watched it.

9 **Q.** Okay. So then -- so do you have any personal knowledge  
10 about how elections are conducted in Georgia, or is it based on  
11 information supplied to you by the plaintiffs in this case?

12 **A.** My knowledge, it comes from many sources. News media.  
13 Some of it is from these pleadings on both sides. I have a  
14 lot -- I have a lot of colleagues who are very interested --  
15 aside from plaintiffs who are very interested in what goes on  
16 in Georgia. So I have been following it very closely.

17 **Q.** And you have never administered an election on a DRE  
18 system like one in Georgia; correct?

19 **A.** No.

20 **Q.** And, in fact -- so your experience, as I understand it, is  
21 limited to lever machines and the optical scans that Columbia  
22 County uses now in terms of your own administration of the  
23 election?

24 **A.** Yes. And hand counting ballots.

25 **Q.** Yes. And did I understand you to say that New York just

1 passed early voting this year?

2 **A.** That is right.

3 **Q.** And when was that legislation passed?

4 **A.** In January.

5 **Q.** Do you know -- did the governor sign it shortly  
6 thereafter?

7 **A.** Yes.

8 **Q.** So you have known since January that early voting is  
9 coming?

10 **A.** Yes.

11 **Q.** Is it true that the -- are you familiar with the budget of  
12 the Board of Elections in Columbia County?

13 **A.** Yes.

14 **Q.** Is it true that it is approximately \$654,000?

15 **A.** Yes.

16 **Q.** And you have not looked at any county or city or municipal  
17 budget in the State of Georgia for the election division, have  
18 you?

19 **A.** Not specifically. I will say our budget in Columbia  
20 County is also augmented by other grants that are available.  
21 So we are not relying simply on our own budget.

22 **Q.** So it is higher -- I mean, the amount of money you have to  
23 spend is higher than \$654,000?

24 **A.** I'm not sure -- you know, I'm not sure about that.

25 **Q.** The \$654,000 is the amount appropriated from the county

1 commissioners; is that right?

2 **A.** Uh-huh (affirmative).

3 **Q.** None of your declarations actually state that a Georgia  
4 county could afford to do this expressly, do they?

5 **A.** No. But I don't think that would be -- well, no.

6 **Q.** And in forming the views that are in your declaration, did  
7 you review any Georgia laws on procurement?

8 **A.** I don't think I did. But I do know that laws can be  
9 changed and modified as need be.

10 **Q.** And in forming the views that are expressed in your  
11 declarations, were you aware that there are going to be Georgia  
12 elections in September of this year?

13 **A.** Yes.

14 **Q.** Okay. And are you familiar with Georgia's early voting  
15 process?

16 **A.** A little bit.

17 **Q.** Do you know that early voting commences in Georgia on  
18 those September elections 19 days from today?

19 **A.** I think I learned that yesterday.

20 **Q.** Okay. And is it still your view that -- well, you haven't  
21 expressed a view on that. I'll leave it at that.

22 Did you have a chance to look at what is known as House  
23 Bill 316, the legislation that the General Assembly passed this  
24 year overhauling the election system?

25 **A.** Yes.



1 Q. Did you see the portion on audits?

2 A. You know, I did not look at it that carefully.

3 Q. You expressed an opinion or view in your declarations  
4 about the 2018 election -- general election in the State of  
5 Georgia. Do you recall that?

6 A. Yes.

7 Q. And you cited to an article in the Columbus  
8 Ledger-Enquirer. Do you remember that?

9 A. Yes.

10 Q. Is that the -- other than information provided to you by  
11 plaintiffs' counsel, is that article the basis of where you  
12 made your views or concluded your views that are in those  
13 declarations?

14 A. No.

15 Excuse me. Could you give me that question again. I  
16 wanted to make sure I didn't get a double negative there.

17 Q. Understood. I have only had one cup of coffee this  
18 morning. So that is possible.

19 In your declaration, the first supplemental declaration  
20 filed in this case, which was submitted to the Court on  
21 June 19, Paragraph 10 says, I understand from reviewing news  
22 reports and reviewing affidavits from voters and poll watchers  
23 that I received from Coalition for Good Governance that voters  
24 experienced long waits at polls, problems with attempting to  
25 check in at their precincts because of problems with the

1 electronic pollbook information, faulty operation of the DRE  
2 machines in the polling places, including vote flipping or  
3 incorrectly displayed or missing races on the electronic  
4 ballot, and DRE voting sessions being canceled while the voter  
5 was voting.

6 There is a footnote after the long lines in the polls, and  
7 it cites a Columbus Ledger article. And that is the sole basis  
8 of the citation.

9 So I want to make sure that in making those conclusions  
10 you relied on information provided to you by plaintiffs'  
11 counsel and the Columbus Ledger; is that right?

12 **A.** Well, I did. But that was not the sole source of my  
13 information.

14 **Q.** Okay. So there is -- so you relied on information that is  
15 outside of what is in your declaration?

16 **A.** Well, I think my declaration says that I relied on news  
17 sources. Is that right?

18 **Q.** Well, in that paragraph --

19 **A.** You are citing that one particular article?

20 **Q.** Yes.

21 **A.** I saw more than one article.

22 **Q.** Okay.

23 THE COURT: What is the document number of the  
24 affidavit?

25 MR. BELINFANTE: The declaration I was referring to

1 there, Your Honor, is Document Number 413.

2 THE COURT: It doesn't have an exhibit number? 413  
3 blank dash something?

4 MR. BELINFANTE: 413 blank. Yes, Your Honor.

5 THE COURT: All right. Thank you.

6 **(There was a brief pause in the proceedings.)**

7 MR. BELINFANTE: That was one that was filed all  
8 together. It is Document 413, Page 270 is when it begins.

9 **Q. (BY MR. BELINFANTE)** Now, you're aware in Georgia that --  
10 well, in that article they cite a situation in Gwinnett County  
11 where the county lacked power cords for the precinct.

12 Do you remember that?

13 **A.** Yes.

14 **Q.** And that would impact even if there's optical scanning  
15 systems there as you have in Columbia County; correct?

16 **A.** Yes.

17 **Q.** And you are also aware in that article it cites people as  
18 saying long-time poll workers are saying this is the largest  
19 turnout they have ever seen.

20 Do you recall that?

21 **A.** I think so.

22 **Q.** Okay. And, again, because you have never administered an  
23 election on the GEMS database like in Georgia as well; is that  
24 right?

25 **A.** Correct. But we do have an election management system,

1 which is not so different.

2 **Q.** But it is not Georgia's; right?

3 **A.** It is not Georgia's.

4 **Q.** Now, you're a member or you're affiliated with the  
5 National Election Defense Coalition; is that right?

6 **A.** Yes.

7 **Q.** The National Election Defense Coalition put out what is  
8 called an election tool kit; is that correct?

9 **A.** Sounds right.

10 **Q.** Okay. And in that tool kit -- and just tell me if you  
11 agree with this statement -- it says that the purchasing of  
12 voting machines varies by state; is that right?

13 **A.** Certainly.

14 **Q.** Okay. And it also says that not everyone can mark a paper  
15 ballot.

16 Do you agree with that?

17 **A.** Yes. Well, not everyone can mark a paper ballot by hand.

18 MR. BELINFANTE: All right. I have no further  
19 questions.

20 THE COURT: Thank you.

21 MS. BURWELL: Your Honor, just a few questions.

22 THE COURT: Certainly.

23 Is there an extra copy of the declaration that was  
24 referred to? I just don't want to start looking for it.

25 MR. POWERS: I have a couple.

1 THE COURT: Thank you.

2 (There was a brief pause in the proceedings.)

3 THE COURT: Holly?

4 (There was a brief pause in the proceedings.)

5 THE COURT: Go ahead.

6 CROSS-EXAMINATION

7 BY MS. BURWELL:

8 Q. Ms. Martin, your county completed the transition away from  
9 a lever machine to using the optical scanners in September of  
10 2010; correct?

11 A. Yes.

12 Q. And you knew as early as March of 2010 of the need to  
13 transition; correct?

14 A. Yes.

15 Q. So you had more than three months to transition; isn't  
16 that correct?

17 A. In our case, that's right.

18 Q. And you were transitioning again a county that had at that  
19 point fewer than 45,000 registered voters?

20 A. Correct.

21 Q. And you had about 50 precincts at the time?

22 A. Correct.

23 Q. And --

24 THE COURT: I'm sorry. 43,000 or 63,000?

25 THE WITNESS: 43,000 voters at that time.

1 THE COURT: I see. This was when?

2 THE WITNESS: 2010.

3 THE COURT: In 2010. I see. Versus now 63,000?

4 THE WITNESS: 63,000 is the population. That is what  
5 she asked. We now have about 45,000 voters.

6 THE COURT: All right.

7 **Q. (BY MS. BURWELL)** And you still have 50 precincts?

8 **A.** Yes.

9 **Q.** And when New York law required the use of optical scanners  
10 in 2010, you already had optical scanners; correct?

11 **A.** Yes.

12 **Q.** You had already purchased 52 optical scanners in 2008;  
13 right?

14 **A.** That is right.

15 **Q.** And at the time that the transition occurred in 2010, you  
16 didn't think you would need to purchase additional optical  
17 scanners; correct?

18 **A.** No, certainly not. Optical scanners can handle a lot of  
19 voters.

20 **Q.** So you didn't purchase any additional optical scanners --

21 **A.** No.

22 **Q.** -- in 2010?

23 Now, your declaration doesn't mention how many registered  
24 voters Fulton County has; correct?

25 **A.** No.

1 Q. So you didn't factor that in to your opinion in your  
2 declaration?

3 A. I don't think it is relevant.

4 Q. Okay. And you didn't factor in how many registered voters  
5 that were in Georgia as a whole; correct?

6 A. I don't think it is relevant because everything scales.  
7 Everything scales. It can be done in any size county, small or  
8 large.

9 Q. And you didn't factor in whether or not Fulton County  
10 owned optical scanners; correct?

11 A. I think -- does Fulton -- I think Fulton County does own  
12 some optical scanners.

13 Q. What is the basis of that thought?

14 A. I learned that from Coalition plaintiffs.

15 Q. So did the Coalition plaintiffs tell you that before in  
16 your declaration or after?

17 A. Before.

18 Q. But you didn't factor that in to your declaration;  
19 correct?

20 A. I'm sorry. The question is I didn't factor what in to my  
21 declaration?

22 Q. Whether or not Fulton County had optical scanners.

23 A. I think I did.

24 Q. I thought you said you didn't think it was relevant.

25 A. To the previous question -- what was the previous

1 question? Oh, no. The budget. I think you were talking  
2 about --

3 **Q.** I didn't ask anything about the budget.

4 **A.** Okay. You were talking about the number of optical  
5 scanners?

6 **Q.** Yes. Did you know whether or not Fulton County had  
7 optical scanners was my question. And you said the Coalition  
8 plaintiffs advised you of that.

9 **A.** Yes.

10 **Q.** And I asked you whether that was before or after your  
11 declaration, and you said before your declaration; correct?

12 **A.** Yes.

13 **Q.** But you didn't factor -- there is nothing in your  
14 declaration about the fact that you believe Fulton County has  
15 optical scanners; correct?

16 **A.** If it is not there, it is not there.

17 **Q.** And you didn't factor in how many optical scanners, if  
18 they had any, Fulton County had; correct?

19 **A.** No. I was not concerned with the number.

20 **Q.** Just like you weren't concerned with the number of  
21 registered voters there are in Fulton County; correct?

22 **A.** Because everything can be scaled. And transitions --  
23 transitions when they need to be made can get made. That is  
24 what election commissioners do. They make transitions when  
25 they need to get made.



1 Q. But you made a transition from lever machines to optical  
2 scanners, and you had six months to do that; correct?

3 A. That was a very large transition. That was a huge  
4 transition. We had -- we had not used electronics at all in  
5 our elections. All of our voters were voting on a mechanical  
6 lever machine. It was a mammoth change for us.

7 Q. So the answer to my question is yes, you had six months to  
8 transition from a lever machine to the optical scanners?

9 A. Yes.

10 Q. Correct? Even though you already had optical scanners?  
11 Because you told us before you had purchased 50 --

12 A. Yes.

13 Q. -- in 2008; correct?

14 A. Yes.

15 Q. And it was a mammoth undertaking for a county with 43,000  
16 registered voters and 50 precincts; correct?

17 A. Because we were going from a very different system to this  
18 system.

19 MS. BURWELL: I understand. Thank you.

20 MR. POWERS: No further questions. No redirect.

21 THE COURT: May this witness be excused?

22 MR. POWERS: Yes.

23 THE COURT: Thank you very much.

24 MR. MANOSO: Would you like to move forward with the  
25 next one before we have to break? I don't know if we can get

1 him up and down, but we can begin.

2 THE COURT: Who is your next witness?

3 MR. MANOSO: Mr. Lowell Finley on behalf of the  
4 Curling plaintiffs.

5 **(There was a brief pause in the proceedings.)**

6 THE COURT: Is there anyone in the room that is here  
7 for the hearing in the class action settlement?

8 Why don't we go ahead and get Mr. Finley on the  
9 stand. And we'll proceed from there. Thank you.

10 MR. MANOSO: Sounds good, Your Honor.

11 THE COURT: This is Mr. Finley.

12 COURTROOM DEPUTY CLERK: Please raise your right  
13 hand.

14 **(Witness sworn)**

15 COURTROOM DEPUTY CLERK: Please have a seat. Loudly  
16 and clearly state your full name, and spell your last name for  
17 the record, please.

18 THE WITNESS: Lowell Finley, F-I-N-L-E-Y.

19 Whereupon,

20 LOWELL FINLEY,

21 after having been first duly sworn, testified as follows:

22 DIRECT EXAMINATION

23 BY MR. MANOSO:

24 **Q.** Morning, Mr. Finley.

25 **A.** Morning.

1 **Q.** Mr. Finley, the Court has your CV. Can you please just  
2 briefly describe your relevant experience as it relates to  
3 election voting systems, please?

4 **A.** From 2007 to 2014, I was the California Deputy Secretary  
5 of State for Voting Systems Technology and Policy. It is a  
6 mouthful. And in that capacity, I oversaw and administered the  
7 drafting of voting system standards for the state, oversaw the  
8 state voting system certification system, was responsible for  
9 standards for ballot printers in the state, and in the first  
10 year of 2007 was responsible for designing and administering a  
11 statewide review of all electronic voting systems that were in  
12 use in the state.

13 **Q.** Thank you. Any other experience beyond your role and your  
14 duties as the Deputy Secretary of State that are relevant to  
15 this case?

16 **A.** The Secretary of State appointed me as the state's  
17 representative on the Standards Board of the Federal Election  
18 Assistance Commission. And that body was concerned with the  
19 standards that were applied for certification at the federal  
20 level of all voting systems.

21 So I participated in that. And in that process, I learned  
22 about the voting systems that were being used in many states  
23 around the country, including Georgia.

24 MR. MANOSO: Thank you. Your Honor, we would like to  
25 tender Mr. Finley as an expert in state election system

1 administration implementation.

2 MR. BELINFANTE: Your Honor, we would object. There  
3 has been no -- again any mention of the State of Georgia in  
4 that soliloquy. The only real mentions of Georgia in the  
5 declaration are when he describes the technology in Georgia, as  
6 well as a conclusory opinion that the transition would be  
7 feasible without identifying any methodology or anything he has  
8 reviewed in Georgia to reach that conclusion. I can go through  
9 more. But it is more of what you have heard before.

10 MR. MANOSO: Your Honor, I'm happy to ask a couple of  
11 questions and lay the foundation. I'm just trying to move  
12 things along.

13 THE COURT: You can lay the foundation, but I'm  
14 inclined to allow him. And I think some of this goes to the  
15 weight of whatever he might -- and validity of what he might  
16 say about something that's very particular to Georgia.

17 But Mr. Finley has been the representative of the  
18 Standards Board of the Federal Election Assistance Commission.  
19 He is certainly experienced on a statewide basis on dealing  
20 with election issues. It doesn't -- and election processes and  
21 voting systems as a state administrator.

22 I don't know that he's being proffered as an expert  
23 on Georgia -- on Georgia, per se. We -- but we are still part  
24 of the United States.

25 MR. MANOSO: Thank you, Your Honor. I will ask two

1 brief questions on that.

2 **Q.** (BY MR. MANOSO) Mr. Finley, could you generally describe  
3 your experience with Georgia's election system prior to your  
4 engagement in this case.

5 **A.** Yes. I heard Dr. King, who headed the Kennesaw State  
6 University Election Center, describe the system in Georgia in  
7 great detail several times at EAC-sponsored events.

8 THE COURT: By EAC, you are referring to --

9 THE WITNESS: The Election Assistance Commission and  
10 the Standards Board. I participated in panels in which he was  
11 the moderator for the EAC in which we discussed among other  
12 things Georgia's system.

13 I have also read the state assembly bill that was  
14 adopted this year -- I believe it is 316 -- providing for  
15 adoption of new voting technology in the state. I have read  
16 the voting system state certification regulations. And I have  
17 reviewed election results from a number of Georgia counties in  
18 the 2017 municipal elections and the 2018 general election.

19 **Q.** (BY MR. MANOSO) Thank you. Before we get to the other  
20 matter, just two brief things on your experience with  
21 California. Approximately -- well, let me back up.

22 Can you just in one sentence describe what happened in  
23 2007 with respect to the use of DREs in California?

24 **A.** After a study conducted over many months by top computer  
25 science professors and experts around -- from -- assembled from

1 around the country, our Secretary of State ordered that most  
2 DREs used in the state be decertified because of their security  
3 and reliability risks.

4 **Q.** And approximately how many DREs had to be replaced as a  
5 result of this decertification?

6 **A.** It was tens of thousands of DREs.

7 **Q.** And approximately how many registered voters were impacted  
8 by the decision to decertify DREs?

9 **A.** Approximately 4,300,000.

10 **Q.** Mr. Finley, based on your experience in administering and  
11 learning about election systems, why do you believe that the  
12 relief requested by the Curling plaintiffs is feasible?

13 **MR. BELINFANTE:** Objection. Same issue. He is  
14 not -- I mean, if he is going to now talk about feasibility, he  
15 has not identified anything in Georgia other than testimony,  
16 which, frankly, was not disclosed to us when we requested. And  
17 he has not identified any method by which he could evaluate  
18 feasibility or even what factors go into feasibility.

19 **THE COURT:** You can touch on that.

20 Is counsel for the other case ready before we --

21 **COURTROOM DEPUTY CLERK:** Yes. They are all here.

22 **MR. MANOSO:** If I may briefly, Your Honor, in their  
23 response, the state relied heavily on their new system as being  
24 a panacea that no longer required relief from the Curling  
25 plaintiffs. Mr. Finley is here simply to respond to that and

1 to explain how what the state is saying that they are going to  
2 do, at least elements of that, can be incorporated and how it  
3 relates to the feasibility of the Curling plaintiffs' relief.

4 MR. BELINFANTE: Your Honor, he is testifying -- I  
5 mean, he is explaining what he is going to say. He is not  
6 explaining how he has a basis of that opinion or anything that  
7 goes into it.

8 THE COURT: All right. We're going to break now, and  
9 you can decide how you are going to in part at least address  
10 that in the questioning that you have of your witness, and you  
11 can lay the foundation for it.

12 MR. MANOSO: Thank you, Your Honor.

13 THE COURT: How many counsel do we have in that  
14 employment case?

15 COURTROOM SECURITY OFFICER: I think there's five or  
16 six.

17 THE COURT: All right. So why don't the people in  
18 the front row here move back or leave the room, whatever you  
19 desire to do. This will take not long. But it will -- you  
20 know, I think I have to assume that it might take 20 to 40  
21 minutes. So counsel should not disappear. What the audience  
22 wants to do, that is something else.

23 **(A brief break was taken at 10:26 A.M., and the**  
24 **Court addressed another case.)**

25 THE COURT: Please have a seat.

1 All right. Are you ready to resume?

2 MR. MANOSO: Yes, Your Honor. I'm going to withdraw  
3 the prior question, back up, and lay a few foundational  
4 questions, Your Honor, to see if we can't move things along.

5 THE COURT: All right.

6 **Q. (BY MR. MANOSO)** Mr. Finley, what material related to  
7 Georgia's election systems did you review in preparation for  
8 your testimony today?

9 **A.** I have read descriptions of the voting system itself and  
10 how it is administered at the state level passed down through  
11 the counties.

12 **Q.** You might need to move into the mic a little bit.

13 **A.** I've read -- I believe I mentioned earlier I had read HB  
14 316. I have read the state's voting system certification  
15 regulations. And I've read voting results indicating turnout  
16 levels from a number of counties in 2017 and 2018 in Georgia.

17 **Q.** What about the state's RFP requests for a new election  
18 system? Have you reviewed that?

19 **A.** Yes. I read the RFP, as well as the attachment of the  
20 plan and scope of work for the new voting system.

21 **Q.** And have you reviewed materials submitted by the state as  
22 to the number of elections that are going to be held in Georgia  
23 this year?

24 **A.** Yes. I reviewed an exhibit that was submitted by the  
25 state and a slightly modified version of it that was, I



1 believe, just filed yesterday, very recently, that is  
2 color-coded that indicates which portions -- which  
3 municipalities within which counties are conducting elections  
4 in 2019.

5 **Q.** Thank you. Based on your review of that material and  
6 your --

7 MR. BELINFANTE: Objection, Your Honor. This goes to  
8 a discovery issue. We had asked -- and I have got the email  
9 correspondence -- what specifically Mr. Finley relied on in  
10 terms of documents. Not experience but documents. We were  
11 told that he relied on those documents which are attached to  
12 his declaration. None of the documents just identified by  
13 Mr. Finley were attached to his declaration at all.

14 MR. CROSS: I'm going to address this because that is  
15 just simply wrong. We had -- I'm so tired of this. We had  
16 time and time meet-and-confers. There was one in particular  
17 Mr. Russo and I were on where we talked about experts. This  
18 was the agreement. The parties do not have to produce publicly  
19 available information because we were all in a crunch. If they  
20 relied on public information, it is out there. You have it.  
21 That is what the agreement was.

22 Nevertheless, for our experts, including  
23 Dr. Halderman and others, we went the extra step to collect  
24 public articles and others to disclose those to them so they  
25 had the convenience of having them.

1           Now they once again pivot, misrepresent, and they  
2 have everything they needed to know. If they wanted something  
3 more than that, we should have heard it before today.

4           MR. BELINFANTE: Your Honor, may I respond?

5           THE COURT: Yes.

6           MR. BELINFANTE: And, you know, the claims of  
7 misrepresentation are growing tiresome. On July 14 --

8           MR. CROSS: Stop doing it.

9           MR. BELINFANTE: I'm speaking. On July 14, we  
10 received an email -- and I'm happy to distribute it -- from  
11 Ms. Bentrrott, which says about Mr. Finley, in any event, there  
12 is no need to debate this issue. As your email notes, the  
13 documents Mr. Finley relied upon for his declaration are cited  
14 in the declaration itself. Mr. Finley is not currently  
15 withholding any documents, public or otherwise, that he  
16 specifically relied on.

17           We took that to mean what it was. And now we are  
18 hearing that he has gone and looked at a ton of things that are  
19 not cited anywhere in his declaration or attached to it.

20           MR. CROSS: HB 316, it is a surprise to them that he  
21 looked at that? The Georgia statutes, it is a surprise that he  
22 looked at that? Come on. Where is the prejudice? This is  
23 silly.

24           THE COURT: All right. The testimony was directed  
25 toward -- is as a whole directed towards feasibility issues and

1 for him to understand the legal context of HB 316 and the  
2 procurement, which are on the public record, is -- I think is  
3 reasonable since I know I have seen the literature where you  
4 have all talked about relying on things that are in the public  
5 record.

6 I don't know if there is something that -- as to his  
7 understanding the nature of the localities that were having the  
8 elections, I think that is fine too.

9 I didn't -- is there anything else that you are  
10 saying that he relied on that was not identified, other than  
11 those three items that I didn't catch?

12 MR. MANOSO: Your Honor, he reviewed some election  
13 data that he might not have reviewed at the time of his  
14 declaration after he received the state's updated list of  
15 elections. But we are not going to talk about that today, Your  
16 Honor. So we can just move on with the three things that Your  
17 Honor mentioned.

18 THE COURT: All right.

19 MR. MANOSO: Thank you.

20 **Q.** (BY MR. MANOSO) Mr. Finley, based on your review of the  
21 material that you just discussed and your experience with  
22 Georgia, which you mentioned earlier, are there any -- how does  
23 Georgia's election system compare to California and other  
24 states as it relates to the issues before us today?

25 **A.** Georgia is on one end of the spectrum nationally in terms

1 of having a single voting system state down model for deploying  
2 its election system. California is a state that certifies the  
3 use of any system that is submitted and passes testing and then  
4 allows counties to acquire whichever certified system they  
5 think will serve their needs the best. And that is a model  
6 followed in many states around the country as well. So that is  
7 the basic difference.

8 **Q.** Based on that, are there any material differences that  
9 would lead you to believe that the Curling plaintiffs' relief  
10 is not feasible?

11 **MR. BELINFANTE:** Objection. Same objection, Your  
12 Honor. He is testifying as to how the systems have been  
13 certified. But feasibility -- he has not identified any  
14 methodology about how a local government is going to make the  
15 transition, sometimes in 19 days when early voting commences.

16 **MR. MANOSO:** Your Honor, that is not what he says,  
17 first of all. He doesn't say anything about 19 days. He  
18 doesn't say anything about the specific elections in September  
19 or August. Counsel will have the opportunity to cross-examine  
20 him on that.

21 The -- sorry. Go ahead, Your Honor.

22 **THE COURT:** I think we would be more productive here  
23 if we just allowed the testimony to proceed. Unless it is to  
24 the extent that it is really problematic in terms of the 19  
25 days, I feel very confident that you are going to bring that to

1 my attention.

2 I mean, 19 days is a problem no matter what  
3 obviously. And if everyone wants to spend time on 19 days, if  
4 it is a major county -- and is it Fulton County that we're  
5 talking about?

6 MR. BELINFANTE: City of Atlanta.

7 THE COURT: Or the City of Atlanta School Board --  
8 the only thing about it is -- the City of Atlanta School Board  
9 race, is that it? Or is it also Fulton County?

10 MR. BELINFANTE: Fulton County commission has an  
11 election too. So that's --

12 THE COURT: It is Emma Darnell's seat?

13 MR. BELINFANTE: There's the Coweta County house  
14 district, and we have the City of Perry as well.

15 THE COURT: You know, if plaintiffs still want to  
16 pursue that, you are authorized to. But that is a very quick  
17 time frame. So if you are thinking about the allocation of  
18 your time -- and I asked this before in this proceeding -- you  
19 have to consider that because you could limit yourself also to  
20 a later time, frankly.

21 MR. CROSS: Your Honor, to clarify, the November  
22 elections, in all candor, is what we're focused on. The  
23 problem is we can't endorse the current system for any  
24 elections because of the flaws. But we recognize Your Honor is  
25 going to have to weigh everything.

1           The November elections are certainly what we're  
2 focused on. And so we think it is feasible for September.  
3 Obviously not -- I don't think anyone in this courtroom is  
4 going to say you can do it in 19 days. In terms of in-precinct  
5 voting, we think it is feasible. That may create issues. But  
6 by November, we certainly think it is feasible. And that is  
7 ultimately our position, Your Honor.

8           THE COURT: All right.

9           MR. BELINFANTE: Your Honor, just for the record,  
10 would -- I mean, to this point, would you just like us to have  
11 a continuing objection to his testimony?

12           THE COURT: Yes. I think that would make sense.  
13 Thank you very much. I appreciate it.

14           I'm just trying to get us so that -- let me just say:  
15 When I talk about if I have to give extra time or whatever else  
16 but I'm also pressuring you more is I have some very weighty  
17 issues in front of me. I want to make sure I have the evidence  
18 I need in order to understand the issues.

19           And -- so I'm going to do whatever I need to do to  
20 get that. But I want -- but I also need you not to waste time  
21 on things that are just not likely to happen either or not  
22 helpful to the Court.

23           MR. MANOSO: Thank you, Your Honor.

24 **Q.**    **(BY MR. MANOSO)** Mr. Finley, what components -- let me  
25 back up.

1           Are you familiar with the components of the state's new  
2 proposed voting system?

3     **A.**    Yes, I am.

4     **Q.**    What components of the state's proposed voting system  
5 influence your opinions regarding the feasibility of the  
6 Curling plaintiffs' relief?

7     **A.**    There are elements of the state's proposed system that can  
8 be leveraged to implement a system that doesn't use or rely on  
9 the DREs in the current system. The proposed system involves  
10 voting on hand-marked paper ballots. It involves the  
11 acquisition and deployment of scanners at the precincts, and it  
12 involves the acquisition of ballot marking devices.

13           And I think that using the scanners that are proposed in  
14 that system and using just a single ballot marking device for  
15 each polling place to provide for voters with disabilities, it  
16 would be possible to deploy a system that relied primarily on  
17 hand-marked paper ballots.

18     **Q.**    Mr. Finley, you mentioned the scanners and the BMDs. But  
19 you are also aware that the state's new election system  
20 involves a new election management software system as well?

21     **A.**    Yes. It would be a completely separate election  
22 management system. And this is actually another factor  
23 affecting feasibility.

24           Because the state has already embarked on this process  
25 implementing an entirely new system on a very aggressive

1 schedule and they have scheduled pilots of that technology and  
2 that system in November, it means that all the work is already  
3 being done to implement an entirely different system.

4 And that means that it is possible that in the November  
5 balloting only a single system would have to be deployed. It  
6 would no longer be necessary to conduct two systems  
7 side-by-side, the GEMS system that exists currently for the EMS  
8 and the technology and then this new system in a pilot mode.

9 By expanding the deployment of elements of the new system,  
10 you could -- the state and the counties could be implementing  
11 only a single system. That would reduce the workload and the  
12 comprehension of multiple moving parts dramatically.

13 **Q.** How does the state's implementation of precinct optical  
14 scanners as part of their new system affect your opinion  
15 regarding the feasibility of the Curling plaintiffs' relief?

16 **A.** Well, under the RFP, as I understand it, in the  
17 approximately ten counties that will be participating in the  
18 pilot, each of them is to receive from the state optical  
19 scanning devices.

20 And only seven weeks after the November election, the RFP  
21 provides for all counties in the state to receive precinct  
22 optical scanners, as well as ballot marking devices. For the  
23 November rollout and then later in December, there would also  
24 be BMDs supplied for each polling place.

25 And by ramping up the deployment beyond the numbers that



1 are currently contemplated for the pilots, that system could be  
2 put in place for the limited number of precincts that are going  
3 to be conducting elections in November because it is not all  
4 counties and it is not all parts of the counties in the state  
5 that will be participating.

6 **Q.** Let's drill down on the scanners because you mentioned the  
7 optical scanners. The optical scanners that are being rolled  
8 out as part of the pilot program, you are not saying that those  
9 are enough for all of the elections this November?

10 **A.** No. That is right.

11 **Q.** So how will the state acquire additional scanners  
12 necessary to implement the Curling plaintiffs' proposed relief?

13 **A.** Well, the state is already planning to ask the new vendor  
14 to provide a large number of scanners by the end of December  
15 this year. So they are looking at a fast production schedule.

16 And what I'm suggesting is that by -- by advancing that  
17 procurement, the state should be able to acquire enough  
18 scanners to be able to supply the limited number of precincts  
19 that will be participating in these November elections.

20 Also under the proposed relief of the plaintiffs, instead  
21 of acquiring four or five ballot marking devices per precinct,  
22 which is what is planned in the pilot areas, it would only be  
23 necessary to provide one ballot marking device. And that would  
24 free up money out of the, as I understand it,  
25 150 million-dollar appropriation to purchase more optical

1 scanners early in the process than might have been  
2 contemplated.

3 **Q.** Mr. Finley, in your experience, what are the alternatives  
4 if a vendor cannot necessarily produce enough scanners in time  
5 for an election? What are the other options that are  
6 available?

7 **A.** Well, if they don't have enough for purchase, it may be  
8 possible to lease existing equipment from that vendor. It is  
9 also possible to borrow or on a more formal basis enter into a  
10 short-term lease for use of equipment that is already owned by  
11 counties in neighboring jurisdictions.

12 And this is something that I have observed during the time  
13 I was with the EAC Standards Board. And within California when  
14 there were shortages of equipment in one jurisdiction, it was  
15 fairly commonplace for arrangements to be made to borrow  
16 equipment from others that used the same equipment but were not  
17 planning to use it because they didn't have an election  
18 scheduled at the same time.

19 **Q.** Based on your experience, how could Georgia develop the  
20 necessary poll worker training to conduct an election based on  
21 the Curling plaintiffs' proposed relief?

22 **A.** Well, first of all --

23 MR. BELINFANTE: Objection, Your Honor. This is  
24 outside the scope of his declaration. The declaration cites  
25 two things. One is that there are experts willing to help and,

1 two, based on his experience in California this could be done.  
2 The question was certainly broader than that.

3 MR. MANOSO: Your Honor, certainly the state will  
4 say, I'm sure, that implementing policies and procedures are  
5 part of a new -- and I can ask him about his experience in  
6 developing those if it would lay the foundation. But, again,  
7 we covered this.

8 THE COURT: There is sufficient room if they want to  
9 let them in. Thank you.

10 I'm sorry. What were you wanting to say?

11 MR. MANOSO: I'm sorry. I was going to say, Your  
12 Honor, that we kind of have been over this ground already. His  
13 declaration talks about the feasibility and how it could be  
14 implemented.

15 The state will say that training and developing  
16 procedures is the reason it can't be done. Surely he has the  
17 ability to say why it can be done based on his experience as we  
18 have already talked about.

19 THE COURT: I'm going to allow it. I mean, it could  
20 have been more specific. But I don't really think that in any  
21 way that the able defense counsel is not equipped to be able to  
22 address this in cross-examination. It is not -- we're not in  
23 some unique computerized area what he is discussing. This  
24 is -- so -- or forensic testing.

25 So go ahead.

1 **Q.** (BY MR. MANOSO) Go ahead, Mr. Finley.

2 **A.** Well, based on my experience in California and on the EAC  
3 Standards Board, most training materials and guidelines and  
4 technical guidance are produced at the state level and  
5 distributed to county jurisdictions.

6 And many of those materials are produced initially by the  
7 vendors and then just reviewed and approved by the state. So  
8 when any new voting system is being rolled out, which is what  
9 the state is in the process of doing right now, they already  
10 have to have been moving very far along in the process of  
11 developing those procedures, in my experience, in order to be  
12 planning on implementing them in pilots in November of this  
13 year.

14 So it is a matter of taking those policies and guidelines  
15 and training materials and just extending their -- their reach.  
16 Distributing them to more people, making them available.

17 And you can make use of digital resources. You can put  
18 this information up on state and county websites. Vendors  
19 typically have demonstration materials, videos showing how  
20 their equipment and systems are used showing people what their  
21 ballots look like.

22 There is a lot of material available both in print and  
23 online to train poll workers, election administrators, and  
24 voters.

25 **Q.** And just to clarify, Mr. Finley, something you said

1 earlier, you mentioned BMDs for 2019 elections. You are not  
2 suggesting that BMDs be used for all voting, are you?

3 **A.** No. I think under the Help America Vote Act some solution  
4 has to be provided in the polling place for voters with  
5 disabilities who are unable to mark a ballot by hand. BMDs are  
6 a reasonable option for that. But that only requires a single  
7 device in each polling place.

8 **Q.** And what form of voting are you suggesting is feasible for  
9 all voters except for those that have certain disabilities as  
10 you just discussed?

11 **A.** I think voting on hand-marked paper ballots that are then  
12 optically scanned is a feasible alternative for all other  
13 voters.

14 **Q.** Final question, Mr. Finley, in your discussion of BMDs,  
15 you are not suggesting that BMDs with bar codes be used, are  
16 you?

17 MR. BELINFANTE: Objection. Outside the scope of his  
18 declaration.

19 **A.** No, I'm not.

20 MR. MANOSO: Thank you. No further questions, Your  
21 Honor.

22 THE COURT: Objection noted.

23 MR. BROWN: Your Honor, I have a few questions.

24 EXAMINATION

25 BY MR. BROWN:

1 Q. Mr. Finley, my name is Bruce Brown. I represent the  
2 Coalition plaintiffs.

3 A. Good morning.

4 Q. I want to focus your attention on the recommendations that  
5 you were offering opinions on and what happens after the DREs  
6 are put away for good.

7 Are you with me?

8 A. Yes.

9 Q. And the recommendation is that pieces of the state's new  
10 procurement be used along with hand-marked paper ballots; fair  
11 to say?

12 A. Yes.

13 Q. And that that be deployed for, let's say, the November  
14 elections? Are you with me?

15 A. Yes.

16 Q. And for the November elections, the ballot building would  
17 need to start probably in September; correct?

18 MR. BELINFANTE: Objection. Leading.

19 THE COURT: You are leading.

20 Q. **(BY MR. BROWN)** When would the ballot building need to  
21 start for the November election?

22 A. Because I don't know the vendor that the state is  
23 selecting and the specific system, I don't know.

24 Q. Can you -- if you don't know -- so you don't know when the  
25 ballot building will begin?

1 **A.** No, I don't. What I think I can assume based on my  
2 experience with many different voting systems is that the  
3 ballot voting building -- I'm sorry -- the ballot building  
4 process will need the same amount of lead time as is the case  
5 with DRE-based systems, paper-based systems.

6 The factor with paper-based systems is time needs to be  
7 allowed for the printing of the ballots. But there are  
8 specialized printers either in-house with voting system vendor  
9 companies or those that they work with who are accustomed to  
10 producing large numbers of ballots on a very fast turnaround.  
11 That is the easiest to get in an off year like this because  
12 there's not competing demand from all over the country.

13 **Q.** And -- but with the Curling plaintiffs' proposal, these  
14 ballots would be built on the yet to be purchased EMS system;  
15 correct?

16 **A.** That's correct.

17 **Q.** So between the Court's order and the time that ballots  
18 have to start to be built, there would need to be the  
19 procurement itself; right? They have to purchase --

20 MR. BELINFANTE: Objection. Leading.

21 **Q.** **(BY MR. BROWN)** What would have to happen between -- for  
22 that to be enough time to get the ballots built on the new  
23 system?

24 **A.** The contract would have to be signed. The system would  
25 have to be submitted to the state for its certification

1 process. Following certification, the ballot building could  
2 begin immediately on the EMS.

3 **Q.** Let me ask you about state certification. You are  
4 familiar with that?

5 **A.** Yes, I am.

6 **Q.** What is involved in Georgia to certify a new system?

7 **A.** The first requirement is that the system is to already  
8 have received the certification from the Election Assistance  
9 Commission. And then the vendor submits the system. The state  
10 hires any ITAs, independent testing authorities, that are  
11 necessary to look at components of it. And then it delivers a  
12 report. And if it finds it acceptable, it certifies the  
13 system.

14 **Q.** It is not rubber stamped? Is it rubber stamped?

15 **A.** It is not rubber stamped. It is a much faster process in  
16 my experience. I should say I reviewed the certification  
17 regulations for Georgia, and they are very similar. They track  
18 the same steps and model that California uses.

19 And the EAC process tends to take a year or more. The  
20 state process in my experience tends to take from several weeks  
21 to in the most extreme cases several months.

22 **Q.** So low several weeks to high several months for state  
23 certification then?

24 **A.** Yes.

25 **Q.** Okay. And so this plan would be -- let's say an order



1 came out today. It would be hopeful that the state could get a  
2 contract and then go through the bid protest process and then  
3 start state certification, three more weeks, and then start  
4 building the ballots and then deploy the new BMDs for 130  
5 counties? That is the plan all before November?

6 MR. BELINFANTE: Objection. Leading.

7 MR. CROSS: Objection. It also misstates the relief  
8 that we have requested.

9 THE COURT: I'm not going to consider it for purposes  
10 of relief. I'm just trying to understand what the witness  
11 thinks is a possible process here based on his experience. And  
12 I'm not going to plug it into here at all.

13 But in that -- I have never heard a year for an EAC  
14 certification so that we'll talk about that separately.

15 **Q. (BY MR. BROWN)** Let me ask another question. You said a  
16 number of times for these limited elections in November. But  
17 you understand that there's going to be 130 counties having  
18 elections?

19 **A.** My understanding is that it was about 125 and that roughly  
20 25 of them the county actually wasn't going to be administering  
21 those municipal elections in their counties. But that is the  
22 ball park.

23 **Q.** And hundreds of municipalities would be conducting  
24 elections; correct?

25 **A.** That's correct.

1 Q. And so the pilot is for ten counties; is that correct?

2 A. Yes.

3 Q. So you would be wanting the state to explode that to about  
4 tenfold?

5 A. I wouldn't use the word explode. But I think the scale  
6 you are talking about is approximately right. I just note that  
7 the state is already planning to meet that tenfold sort of  
8 level of expansion just seven weeks later than for the pilot.

9 So they're talking about an aggressive schedule, and they  
10 have to be talking with the vendor that responded to a proposal  
11 with that kind of a productive -- I'm sorry -- aggressive  
12 production schedule. They have to be dealing with a vendor to  
13 carry out their plan that is prepared to produce and deliver  
14 the equipment rapidly.

15 Q. This was not critical. I don't mean it to be. But I just  
16 want to get the basis of your information.

17 It is based upon your experience that you are speculating  
18 that those discussions are going on? You don't have personal  
19 knowledge of those discussion?

20 MR. MANOSO: Object, Your Honor. He can make his  
21 arguments later.

22 A. Yes. It is based on my familiarity with the RFP process  
23 in many technology setting states that we administered with the  
24 Secretary of State, including voting systems.

25 Q. (BY MR. BROWN) Did you know that Fulton County dropped

1 out of the ballot program -- pilot program?

2 **A.** I have been told that.

3 **Q.** Does that have an impact upon your review of the  
4 feasibility of the Curling solution?

5 **A.** It does not because the counties are fungible. If there  
6 are going to still be ten counties, we're still talking about  
7 the same basic plan. One in which clearly you need to expand  
8 the number of devices that are made available.

9 **Q.** If you learned that for some reason the use of the new  
10 system, along with the Curling remedy, were impossible by the  
11 November elections, would you then recommend that the state's  
12 DREs be replaced with hand paper ballots?

13 MR. MANOSO: Your Honor, that --

14 **A.** Yes.

15 MR. MANOSO: Your Honor, that is gross speculation.  
16 It is an incomplete hypothetical, and it is just a waste of  
17 time.

18 MR. BELINFANTE: We'll join.

19 THE COURT: I'm sorry. What was your -- I didn't  
20 hear what --

21 MR. BELINFANTE: I'm sorry. I said we'll join in the  
22 objection.

23 THE COURT: I think we're going far afield at this  
24 juncture. So --

25 MR. BROWN: Thank you, Your Honor.

1 THE COURT: -- I'm going to sustain the objections.

2 MR. BROWN: I'll withdraw the question. Thanks.

3 CROSS-EXAMINATION

4 BY MR. BELINFANTE:

5 Q. Morning, Mr. Finley.

6 A. Good morning.

7 Q. My name is Josh Belinfante. I'm one of the attorneys  
8 representing the state in this case, as you probably gathered.

9 A. Yes.

10 Q. I want -- I know we've been down this road. But I want to  
11 make sure that I'm clear on this.

12 In reaching your conclusions on feasibility, you have not  
13 looked at any of Georgia's 159 county budgets; is that correct?

14 A. That is right.

15 Q. You have not looked at any municipal budgets?

16 A. Correct.

17 Q. Have you looked at the Secretary of State's budget in the  
18 elections division specifically?

19 A. No. No.

20 Q. Are you aware that early voting in Georgia -- in-person  
21 early voting takes place on a DRE?

22 A. Yes.

23 Q. And -- or certainly can?

24 A. Yes. It is done that way in some places.

25 Q. And are you aware that for the November elections early

1 voting can commence in, I believe, 82 days, give or take a day  
2 or two?

3 **A.** That is not a number that I, you know, can immediately  
4 access.

5 **Q.** Did early voting on DREs factor into your conclusions that  
6 Georgia's cities and counties could feasibly make the  
7 transition from DREs to pure paper ballots?

8 **A.** Well, early voting on DREs may be the current system. But  
9 it is always necessary with any voting system to have a paper  
10 ballot alternative available in the event of failure of the  
11 system.

12 It is also necessary to have provisional balloting  
13 available, and that is done on paper ballots. So if you are  
14 going to be making the changeover, if you are talking about  
15 early voting, you can be -- you can change that aspect of the  
16 system at the same time and use the paper ballots at that  
17 phase.

18 **Q.** Let me ask just so I can be clear: When you were making  
19 your conclusions, were you contemplating as you testified today  
20 that it is feasible that it can be done in 82 days, the  
21 transition from DREs to paper ballots in Georgia's cities and  
22 counties?

23 MR. MANOSO: Your Honor, that is asked and answered.

24 MR. BELINFANTE: He did not answer. He talked about  
25 -- I'm asking if he contemplated the time.

1 THE COURT: Proceed. Go ahead. I understand.

2 Proceed.

3 **A.** I focused on the November 5th election date. I did not  
4 look at it in an 82-day period.

5 **Q.** **(BY MR. BELINFANTE)** I understand. Now, you have  
6 served -- I understand you have served on national boards with  
7 the EAC and whatnot. But your role as election official -- as  
8 an appointed election official has been limited to the State of  
9 California; correct?

10 **A.** Correct.

11 **Q.** Would you agree with the statement that the procedure for  
12 replacing voting systems varies by state?

13 **A.** Yes.

14 **Q.** California has 58 counties; is that right?

15 **A.** That's correct.

16 **Q.** And 482 cities?

17 **A.** That sounds right.

18 **Q.** Okay. And isn't it true your declaration talks about how  
19 DREs were once decertified in and around 2004? Do you recall  
20 that?

21 **A.** Yes. One particular DRE was decertified, the Diebold's  
22 AccuVote TSx.

23 **Q.** And it was recertified a year or two later?

24 **A.** A different device. It was decertified because it lacked  
25 a voter-verifiable printer -- ballot printer. And the machine

1 that was recertified later was after that had been added to the  
2 machine.

3 **Q.** Understood. And in both that case and in the  
4 decertification you discussed in 2007, that did not impact all  
5 of the counties -- all of California's cities and counties; is  
6 that right?

7 **A.** That's correct.

8 **Q.** Do you know how many counties were impacted by the 2007  
9 decertification?

10 **A.** In terms of moving away from DREs, it was 20 counties. 20  
11 of the 58.

12 **Q.** And would you agree with me that in looking at the issue  
13 of feasibility in a transition, there are several factors that  
14 can come into play?

15 **A.** Certainly.

16 **Q.** And one certainly would be budget? Whether they can  
17 afford to do it?

18 **A.** Yes.

19 **Q.** One would be time? Is there enough time to do it; right?

20 **A.** Yes.

21 **Q.** Now, you played a role in the 2007 top-to-bottom review;  
22 correct? You oversaw it; is that fair?

23 **A.** That's correct.

24 **Q.** Okay. And your declaration attaches and cites an analysis  
25 performed by a Diebold red team. Do you recall what I'm

1 talking about?

2 **A.** Yes.

3 **Q.** And the analysis that the Diebold red team did was  
4 conducted in a laboratory-like environment; is that right?

5 **A.** Yes.

6 **Q.** It did not go into actual polling places and attempt to  
7 manipulate machines?

8 **A.** No. That would have been illegal.

9 **Q.** But presumably the state could have authorized that if  
10 that is what the state was interested in doing in the same way  
11 that states authorize people to do what I think I heard a  
12 phrase yesterday ethical hacking?

13 **A.** I don't believe you are correct about that.

14 **Q.** You talk about in Paragraphs 13 to 16 of your declaration  
15 on the feasibility of hand-marked paper ballots, and you say  
16 that dozens of counties including several with millions of  
17 registered voters quickly and successfully transitioned to  
18 hand-marked optically scanned ballots for voters.

19 Do you agree with that statement?

20 **A.** Yes.

21 **Q.** And the Secretary of State at that time was Debra Bowen;  
22 isn't that right?

23 **A.** Yes.

24 **Q.** And Ms. Bowen or Secretary Bowen -- excuse me -- announced  
25 her decision --



1 THE COURT: Could you turn down just slightly the  
2 volume. Thank you.

3 MR. BELINFANTE: It may be me.

4 THE COURT: Thank you.

5 **Q. (BY MR. BELINFANTE)** Ms. Bowen announced -- I'm sorry --  
6 Secretary Bowen announced her decision roughly August 3rd of  
7 2007?

8 **A.** Yes.

9 MR. BELINFANTE: We're on 4?

10 **(There was a brief pause in the proceedings.)**

11 MR. BELINFANTE: All right. I'm going to approach --  
12 may I approach, Your Honor?

13 THE COURT: Yes.

14 **Q. (BY MR. BELINFANTE)** I'm going to show you what we have  
15 marked as Exhibit 4.

16 **A.** Thank you.

17 **Q.** This certainly purports to be -- and I pulled it from the  
18 Secretary of State's website -- a public statement regarding  
19 the decertification and recommendations of the top-to-bottom  
20 review of voting systems from Secretary Bowen.

21 Do you agree with that?

22 **A.** Yes.

23 **Q.** Okay. If you turn to Page 2 in about the middle of the  
24 paragraph, it quotes --

25 **A.** Which paragraph?

1 Q. I'm sorry. Good point. Third.

2 A. Thank you.

3 Q. It quotes Secretary Bowen, and she says that she's mindful  
4 that the -- of the impact these decisions will have on voters.  
5 That is in the first part. And it goes on to say, however, it  
6 is important to remember that in last November's election at  
7 least two-thirds and probably closer to 75 percent of the  
8 8.9 million voters who cast ballots did so using paper absentee  
9 or paper optical scan ballot.

10 Do you see that?

11 A. Yes.

12 Q. And you agree with her statement?

13 A. Yes. On the statewide level, that is an accurate  
14 statement.

15 Q. Okay. And she goes on to say on the next page in the  
16 last -- I guess third from the bottom paragraph beginning with  
17 California law requires --

18 A. Yes.

19 Q. It says there in the two -- the last two sentences that  
20 the law states that any such withdrawal can only affect  
21 elections that are held six months or more after the date of  
22 the election and then notes that the next statewide election  
23 for California's 1.57 million registered voters will be the  
24 presidential primary on February 5, 2008.

25 Do you see that?

1 **A.** I do. But I believe you misspoke. It is California's  
2 15.7 million registered voters.

3 **Q.** What did I -- I'm sorry.

4 **A.** 1.5.

5 **Q.** Oh, sorry. Yeah. No. That would not be California. My  
6 apologies. The document will speak for itself.

7 And so California at least when it was doing this had six  
8 months to implement this change; right?

9 **A.** Yes.

10 **Q.** And didn't the Secretary a few months after the  
11 decertification allow the machines back in under certain  
12 circumstances? It was an August revision to the  
13 decertification? Are you familiar with that?

14 **A.** Well, there may be some misunderstanding there. The  
15 decertifications stood. There were revisions made to the  
16 decertification orders after meetings with vendors and county  
17 elections officials to streamline the implementation.

18 But the original August 3rd order allowed the same level  
19 of continued restricted use of DREs as that August order -- as  
20 the modification -- the revision.

21 **Q.** I see. Okay. So there could have been an opportunity to  
22 use the DREs that are subject to the August order after or  
23 during the February election as long as they met new  
24 requirements; is that correct?

25 **A.** No. I need to explain. The original order prohibited the

1 use of DREs except a single machine in each polling place for  
2 the use of voters with disabilities. And it placed specific  
3 restrictions on even that use. It required, for example, that  
4 the printed record of the voters' choices that was retained in  
5 the machine be hand counted and that if there were any  
6 discrepancies that the official results would be those hand  
7 counts of the paper as opposed to the electronic memory. That  
8 sort of thing.

9 So that was there in the original order. There were just  
10 technical revisions made. But there was never an increased  
11 deployment of DREs that was contemplated or allowed.

12 **Q.** And I want to make sure, just so the record is clear  
13 because I know there are two different types of relief being  
14 sought, you are testifying or it is your testimony that there  
15 should be some form of either a BMD type or -- let me rephrase.  
16 There should be some form of electronic voting to comply with  
17 HAVA and to meet the needs of Georgia's disability population  
18 at each precinct?

19 **A.** Yes.

20 **Q.** You testified --

21 THE COURT: Could I just ask you a question. My  
22 time.

23 The DRE that was being used then was the upgraded  
24 DRE, as I understood it -- the upgraded Diebold DRE that  
25 doesn't -- that is -- has the capacity to actually print out a

1 hand ballot; is that right?

2 THE WITNESS: Right.

3 THE COURT: A ballot which somebody -- that  
4 reflects --

5 THE WITNESS: The hardware was different because it  
6 incorporated that voter-verifiable paper ballot. The software  
7 had also been upgraded from the version that Georgia uses.

8 THE COURT: Okay.

9 **Q. (BY MR. BELINFANTE)** Following up on the Judge's question,  
10 that was done after the 2004 decertification is when it shifted  
11 to having the paper ballot record?

12 **A.** That is correct.

13 **Q.** Okay. So in those -- with those machines, would that  
14 paper ballot record be scanned or was it kept electronically  
15 how the vote was counted? Do you understand what I'm asking?

16 **A.** I'm not sure.

17 **Q.** Okay. In the machines that were there after 2004 and you  
18 get a paper trail, was it an actual by ballot piece of paper or  
19 was it a tape?

20 **A.** It is a tape that is retained within the machine that is  
21 viewed under a plastic window by the voter and then rolls up  
22 inside the machine.

23 **Q.** Okay. Let me ask you some questions about some more on  
24 the relief. Are you aware that the money that is going toward  
25 replacing the system was actually a bond issued by the State of

1 Georgia?

2 **A.** Yes.

3 **Q.** Okay. Have you looked at the bond sale document?

4 **A.** I have not.

5 **Q.** Okay. So you can't testify whether the bond sale document  
6 limits the money to be spent on a particular type of equipment  
7 or a particular vis-a-vis BMD or optical scan paper ballot;  
8 correct?

9 **A.** Correct.

10 **Q.** And when you talk about -- you indicated -- you indicated  
11 that the state was going to -- you believed that the state can  
12 meet its goal of having ten counties pilot the BMD project  
13 pursuant to the current procurement?

14 **A.** I have seen nothing that would indicate that the state  
15 can't do that.

16 **Q.** Okay. And so in your opinion, the procurement is still  
17 moving on time, so-to-speak?

18 **A.** Again, I have seen nothing to indicate that it is not.

19 **Q.** All right. Your testimony on what could be done to meet  
20 the remedy focused on what the state could do. You're not  
21 offering an opinion on what counties or cities could do to meet  
22 or to get these machines into the precincts; correct?

23 **A.** Well, I am to the extent that the RFP provides for the  
24 state distributing that equipment to the counties in the same  
25 way that it has always done with the current system.

1 Q. Right. But you're not -- but if a county or a city better  
2 yet wanted to go its own way, you don't have an opinion on  
3 that, do you?

4 A. Well, again, from my understanding of Georgia law, the  
5 counties don't have an option to go a different way. Some  
6 municipalities may.

7 Q. Right. You're not expressing an opinion on those cities  
8 that may choose to go a different way?

9 A. Correct.

10 Q. And by a different way, I mean something other than a  
11 state-backed BMD.

12 A. Correct. I think they are outside of this process, as I  
13 understand it.

14 Q. You testified that there are some other options that I'm  
15 presuming the state could do in terms of leasing equipment. Do  
16 you recall that?

17 A. Yes.

18 Q. And you were then focused on what the state would do? The  
19 state would lease equipment?

20 A. Well, the state or the county could do it. I know that in  
21 Berkeley -- excuse me -- I'm trying to get back home. In  
22 Georgia law, counties are permitted under the most recent bill,  
23 for example, to acquire their own equipment, to acquire  
24 additional equipment of the type that the state provides. So  
25 they always have that option.

1 Q. And in terms of whether -- you also testified about state  
2 certification of the machines. Do you have any personal  
3 knowledge of how long it takes the state to certify voting  
4 equipment?

5 A. In Georgia, no.

6 Q. Okay.

7 THE COURT: What is typically at least in California  
8 involved in the certification?

9 THE WITNESS: I'm sorry?

10 THE COURT: What is involved in California in  
11 certification?

12 THE WITNESS: The voter -- I'm sorry -- the vendor  
13 submits what is called a technical data package, which includes  
14 all of the information about how the system is built and a  
15 description of all of its components. It provides equipment  
16 for testing.

17 And then the state's own testers, supplemented when  
18 necessary by outside vendor companies that are called  
19 independent testing authorities, conducts necessary reviews and  
20 then submits a report to the Secretary of State who makes the  
21 decision about whether to certify the system or not.

22 MR. BELINFANTE: Thank you. No further questions,  
23 Mr. Finley.

24 CROSS-EXAMINATION

25 BY MS. BURWELL:



1 Q. Mr. Finley, I only have a few questions for you. In  
2 looking through your declaration and specifically at  
3 Paragraph 3, you don't identify any experience at the county  
4 election level; is that correct?

5 A. Correct.

6 Q. And you don't have -- you have never been an election  
7 administrator?

8 A. Correct.

9 Q. And you have never worked for an election administrator?

10 A. I was a poll worker.

11 Q. Okay. So you have been a poll worker?

12 A. Yeah. Long ago.

13 Q. But other than that, you don't have any experience with  
14 the actual mechanics other than what you did as a poll worker  
15 of putting together an election; is that correct?

16 A. I wouldn't say that that is correct. I have -- I have  
17 been involved in discussions with local elections officials  
18 about the specifics of how they conduct their elections when we  
19 were being consulted on that.

20 Q. But my question was whether you personally had any  
21 experience in conducting an election.

22 A. In actually conducting them, no.

23 Q. So that lack of experience is at both the county and  
24 municipal level; correct?

25 A. Correct.

1 Q. Now, you've never other than being a poll worker had any  
2 experience in things like finding polling places; correct?

3 A. Again, I have been involved in the process of finding  
4 polling places because the state was responsible for seeing  
5 that counties followed federal and state laws on selection of  
6 polling places, including such things as disability access. So  
7 I have been intimately involved in that process.

8 Q. Okay. So involved in the process. You actually went out  
9 to find places? Or you -- after someone found a place, you  
10 went in to determine whether or not you thought the place was  
11 acceptable?

12 A. No. We were working at the standards level. Not looking  
13 at individual sites.

14 Q. So your experience is in putting together standards for  
15 finding polling places; correct?

16 A. And addressing specific complaints and issues that came up  
17 about the application of those standards by jurisdictions.

18 Q. Making policy?

19 A. Yes.

20 Q. Right. Not --

21 A. And seeing that it was implemented properly.

22 Q. But you personally were not involved in implementing the  
23 policy; correct?

24 A. Correct.

25 Q. That was done at the local level; correct?

1 **A.** Correct.

2 **Q.** And so you weren't involved in anything like the ordering  
3 of supplies for an election?

4 **A.** Correct.

5 **Q.** Okay. And you worked as a poll worker, so you were  
6 trained as a poll worker; correct?

7 **A.** Yes.

8 **Q.** But you weren't in charge of the actual training; is that  
9 correct?

10 **A.** No. But I was in charge of the approval of training  
11 materials that had to be submitted to the State of California  
12 for approval.

13 **Q.** Right. Because your job with the state was a policy  
14 position; correct?

15 **A.** Correct.

16 **Q.** Making policies for the state; right?

17 **A.** Again, not just making policies. But seeing to their  
18 proper implementation.

19 **Q.** And you understand that my questions to you are about  
20 whether or not you personally were involved in the conducting  
21 of an election; right?

22 **A.** Yes.

23 **Q.** You understand that; right? So let me explain it. Do you  
24 understand that those are my questions; right?

25 **A.** Well, I believe I said yes.

1 Q. So I'm asking about the sort of boots on the ground in  
2 conducting an election, not the state level overseeing of the  
3 election.

4 A. You are.

5 Q. Yeah. So that is what I'm asking about. And so I just  
6 want the Court to be clear that you don't have any experience  
7 with boots on the ground conducting of an election that an  
8 election administrator would handle; correct?

9 A. I understand that that is what you are trying to express.

10 Q. Right. And my question to you is: You do not have that  
11 experience; right?

12 A. Yes. I believe I already answered that question.

13 Q. Right. You answered the question that you don't have the  
14 experience?

15 A. I did.

16 Q. Okay. And one last question: Isn't it true that in  
17 California county election officials can begin opening vote by  
18 mail ballot envelopes up to ten business days before election  
19 day?

20 A. That sounds correct.

21 Q. Thank you.

22 MR. MANOSO: Just a couple of questions, Your Honor.

23 REDIRECT EXAMINATION

24 BY MR. MANOSO:

25 Q. Mr. Finley, you were asked about ballot building by the

1 Coalition plaintiffs' counsel. Will ballots have to be built  
2 on the new EMS for the pilot elections that are occurring in  
3 2019?

4 **A.** Yes.

5 **Q.** There was a lot of discussion about certification. Are  
6 you aware of whether the RFP put out by the state requires that  
7 any system submitting a response to that request be EAC  
8 certified?

9 **A.** Yes, that is incorporated in the RFP.

10 **Q.** Opposing counsel asked you about having six months, I  
11 believe, roughly to implement a change from DREs to paper  
12 ballots in California.

13 Did that change precede municipal elections or a  
14 presidential primary?

15 **A.** That change was first implemented in the February 2008  
16 presidential primary, which was conducted statewide throughout  
17 all counties.

18 **Q.** And the California Secretary of State news release that  
19 opposing counsel showed you, does that identify 15.7 million  
20 registered voters across the state? Did I hear that right?

21 **A.** Yes.

22 **Q.** You testified earlier that you reviewed voter turnout  
23 information in local Georgia elections for the several past  
24 years; is that correct?

25 **A.** Yes.

1 **Q.** How did the voter turnout in 2017 compare to the voter  
2 turnout in November 2018, the elections that were just held  
3 last year?

4 **A.** Well, at a general level, what I saw was that turnout  
5 ranged from a low of about 10 averaged in the low teens and  
6 went up as high as 30 percent in the Atlanta mayoral election.  
7 So in the 2017 elections, that is what I saw about turnout.

8 In the comparable 2018 general election balloting in those  
9 same jurisdictions, the turnout tended to be in the 40 to  
10 65 percent range.

11 **Q.** Staying with that 2017 election data that you looked at,  
12 how did the voter turnout in 2017 compare to the expected or  
13 actual voter turnout of California voters when they voted in  
14 the presidential primary in 2008?

15 **A.** I believe the turnout in that presidential primary was  
16 approximately 60 percent statewide.

17 **Q.** Last question. Just a clarification. Is it your  
18 understanding that the RFP requires any machine submitted in  
19 response be already EAC certified?

20 **A.** Yes.

21 MR. MANOSO: Thank you.

22 No further questions, Your Honor.

23 EXAMINATION

24 BY THE COURT:

25 **Q.** What is involved in the EAC certification?

1 **A.** It is similar to the state process I described. The  
2 vendor initiates the process often in conjunction with a state  
3 or local jurisdiction by submitting a technical data package.  
4 As soon as the EAC determines that it has all the material it  
5 needs, including submission of new equipment, new software that  
6 is loaded and ready to test, it conducts testing using its own  
7 experts and in some cases farms out some of the work that is  
8 very specialized, including cybersecurity type testing to  
9 independent testing authorities.

10 And then it reviews all of the results of that material.  
11 Sometimes it is an iterative process where if they identify  
12 questions or problems they'll go back to the vendor and ask  
13 them to make changes either in the documentation or in the  
14 actual coding of the systems and then ultimately will make a  
15 determination whether to certify or to reject certification of  
16 the system.

17 **Q.** And you are saying that can take several months to a year?

18 **A.** Yes.

19 **Q.** And --

20 **A.** I'm aware of many cases in which there were several  
21 iterations of going back and forth between the EAC and the  
22 vendor to correct problems that were identified. And that  
23 takes time.

24 **Q.** And let's say company X has been selling to a variety of  
25 jurisdictions a software package and equipment for the last two

1 years and they basically are just selling to a new jurisdiction  
2 the same.

3 Is it basically automatically given -- does the EAC  
4 automatically give certification? Sort of basically whatever  
5 the information was before is sufficient?

6 **A.** That is right. The certification travels with the system,  
7 and it doesn't have to be renewed for each particular state or  
8 locality's acquisition of the system. So long as they -- as  
9 what they acquire conforms to what was tested, the  
10 certification remains in effect.

11 **Q.** And how many years can the certification remain in effect?

12 **A.** The certifications are open-ended.

13 **Q.** And how does that -- you know, we just had the -- a lot of  
14 different reports including, I think, yesterday the report of a  
15 bipartisan Senate Intelligence Committee on Voting.

16 How does -- to the extent you know -- and please identify  
17 if you don't know something based on your actual professional  
18 involvement. How does that deal with the fact that either that  
19 there may be new developments or new reports of weaknesses in a  
20 system -- in a voting system in terms of -- I have already been  
21 certified, let's say, in 2010 or 2012 and now it is 2016 or  
22 2017. And --

23 **A.** Yeah. Unfortunately, the system is pretty inflexible and  
24 slow moving. And there aren't any built-in mechanisms to  
25 trigger reconsideration of certifications. So that has to be



1 initiated by someone.

2 I can speak to the state certification model in California  
3 where that sort of thing comes up and the Secretary of State on  
4 her own initiative or at the request of voters can reopen the  
5 certification question with a system. And that has been done  
6 in California with several systems as new information became  
7 available about vulnerabilities or attacks.

8 MR. CROSS: Your Honor, I think there may be a little  
9 bit of confusion, if I may help. My understanding -- and  
10 Mr. Finley can clarify. Our understanding of the RFP process  
11 is that the system that has to go into effect this year for the  
12 pilots has to be EAC certified already. So we weren't  
13 suggesting that there is an EAC process that is going to have  
14 to play out in the future.

15 THE COURT: I see.

16 MR. CROSS: It already has to be in place. So the  
17 time frame for EAC certification doesn't matter.

18 THE COURT: I see.

19 MR. CROSS: I didn't want Your Honor to spend more  
20 time on that because I think we weren't clear about that.

21 THE COURT: All right. Everyone else agrees with  
22 that?

23 MR. BROWN: We do, Your Honor. And I think this is  
24 conceded also -- there is also the state certification that is  
25 in the future, and that has not happened.

1 THE COURT: Does the state agree with that?

2 MR. RUSSO: Your Honor, to be able to -- for a vendor  
3 to be able to qualify for negotiations for the contract, their  
4 system had to have been certified by the state also.

5 THE COURT: So you have already certified each of the  
6 systems that are currently -- you are --

7 MR. RUSSO: If they are not already certified, then  
8 they are in the process of finalizing that.

9 THE WITNESS: Is that certification process public?

10 MR. RUSSO: Right. The machine. I'm talking about  
11 the machines had to be certified.

12 THE COURT: All right.

13 MR. BROWN: Is there any evidence of that other than  
14 counsel's statement that they have been certified?

15 MR. RUSSO: I said they have to qualify -- to qualify  
16 for the contract, they have to have been certified. I don't  
17 know which ones -- it is in the RFP documents. That is right.  
18 So the machines still have to get certified.

19 THE COURT: The bond document that the defendants'  
20 counsel referenced, is that something you can provide me with  
21 the language of the bond document?

22 MR. BELINFANTE: We can certainly do our best to get  
23 it to you.

24 THE COURT: Thank you very much. And, of course,  
25 opposing counsel as well.

1 **Q. (BY THE COURT)** In reviewing your affidavit, I see that  
2 you also serve at Chief Counsel to the Office of the California  
3 Secretary of State --

4 **A.** Yes.

5 **Q.** -- as an attorney?

6 **A.** Yes.

7 **Q.** All right. And did California or you have any concerns  
8 regarding any issues under the Americans with Disabilities Act  
9 as to the use of the -- of the machines as long as they -- of  
10 the voting machines if there was, in fact, a printout of the  
11 vote?

12 **A.** We did.

13 **Q.** Or did they also have to do a hand ballot also? I wasn't  
14 100 percent sure.

15 **A.** No, they did not also have to do a hand ballot. We did  
16 have concerns. But even with the addition of the  
17 voter-verified paper audit trail, there were still serious  
18 trustworthiness problems with those DREs, which I could go  
19 into.

20 But we -- in the procedures that we required be  
21 implemented to continue to use those DREs for the limited  
22 purposes of allowing voters with disabilities to vote, we did  
23 everything we could procedurally to try to limit those risks.  
24 And the primary thing was to require that whenever a ballot was  
25 cast on the DRE the paper record of that voter's choice had to

1 be compared, the totals had to be added up, and if there was  
2 any discrepancy between what was put on paper at the time of  
3 voting and what the electronic record reflected that had up to  
4 then been the official record of the vote, then the paper  
5 result would be substituted. Because there are concerns about  
6 whether that is a trustworthy -- whether the machine is capable  
7 of printing one thing and showing on the screen another thing.

8 THE COURT: All right. Thank you.

9 Is there anything else?

10 MR. CROSS: No further questions.

11 MR. BELINFANTE: No.

12 THE COURT: Thank you very much.

13 MS. CHAPPLE: The Curling plaintiffs would like to  
14 call Dr. Halderman next.

15 THE COURT: That's fine.

16 MR. RUSSO: Your Honor, just a quick housekeeping  
17 note, could we get an update on how much time both sides have  
18 left.

19 THE COURT: You can take my questions off, Ms. Cole.

20 MR. RUSSO: We're showing 37 minutes for plaintiffs.  
21 I just want to make sure we are still on track.

22 LAW CLERK COLE: Curling plaintiffs have used two  
23 hours and 13 minutes. Coalition plaintiffs have used one hour,  
24 46 minutes.

25 MR. POWERS: Could you repeat that. We couldn't

1 hear.

2 LAW CLERK COLE: Two hours, 13 minutes for Curling.  
3 One hour, 46 minutes for Coalition. You can add those  
4 together.

5 MR. CROSS: Roughly four hours.

6 MS. BENTROTT: That's what we have. We have an hour  
7 left.

8 MR. CROSS: We have just over one hour left.

9 MR. RUSSO: That is different than our numbers.

10 MR. MILLER: Does that include when the clock was  
11 stopped for --

12 LAW CLERK COLE: I'm keeping it separately from what  
13 is going on.

14 MR. CROSS: Our calculations are the same as your  
15 clerk's, Your Honor.

16 THE COURT: All right. I know that you said that you  
17 would only use, you thought, half an hour with this witness.  
18 And I don't know how many witnesses at this point the  
19 defendants plan to call. But, you know, I'm obviously not  
20 going to forgo having an examination of the government's  
21 witnesses.

22 So -- but I'm not -- obviously Dr. Halderman has been  
23 an important witness. And I'm just going to have to play this  
24 by ear. But if I give you any extra time, I'm obviously giving  
25 the extra time to the government as well.

1           So I just want to be sure -- and we'll go over this  
2 again. Thank you for raising the question so that we're all  
3 clear.

4           Is there any dispute about the four hours? Did  
5 defense counsel --

6           MR. RUSSO: No, Your Honor.

7           THE COURT: All right. Very good.

8           MR. CROSS: Your Honor, I apologize. We limited the  
9 direct to 18 minutes. We didn't anticipate questions from the  
10 Coalition. So sorry that that ran a little long.  
11 Dr. Halderman knows to be focused and brief.

12          THE COURT: All right.

13          COURTROOM DEPUTY CLERK: Please raise your right  
14 hand.

15                           **(Witness sworn)**

16          COURTROOM DEPUTY CLERK: Please have a seat. Loudly  
17 and clearly state your name, and spell your last name for the  
18 record.

19          THE COURT: Just before he begins, I do need some  
20 technical assistance. The computer is having some troubles. I  
21 wanted to see whether anyone else other than me can get this  
22 moving.

23          THE WITNESS: My name is Alex --

24          THE COURT: Wait. I'm sorry.

25                           **(There was a brief pause in the proceedings.)**

1 THE COURT: All right. Everyone have a seat again.  
2 We are ready. So thank you.

3 Would you go ahead and state your name.

4 THE WITNESS: My name is Alex Halderman. That is  
5 H-A-L-D-E-R-M-A-N.

6 Whereupon,

7 J. ALEX HALDERMAN, PH.D.,

8 after having been first duly sworn, testified as follows:

9 DIRECT EXAMINATION

10 BY MS. CHAPPLE:

11 Q. Good afternoon, Dr. Halderman.

12 (There was a brief pause in the proceedings.)

13 Q. (BY MS. CHAPPLE) When we were here for last year's  
14 hearing, you expressed some concerns regarding threats to  
15 critical infrastructure, including election infrastructure from  
16 nation states and others.

17 Does your opinion change at all when the elections we're  
18 talking about are smaller, for example, the elections this fall  
19 here in Georgia?

20 A. No, my opinion doesn't change. I worry based on the  
21 intelligence reports that we've all seen about threats to  
22 critical infrastructure from Russia and other nation states  
23 that even local elections could be an ideal target for attacks  
24 aimed at undermining voter confidence and voter belief in the  
25 legitimacy of their elected leaders.

1 Q. Turning to yesterday's testimony from Mr. Barnes, did you  
2 observe his testimony?

3 A. Yes, I did.

4 Q. Do you have an opinion about the fact that he has three  
5 people building ballots from their homes?

6 A. I have to say I almost fell out of my seat when I heard  
7 Mr. Barnes testify that. That goes even beyond the grave risks  
8 that we already knew from his previous testimony existed in the  
9 state's processes. And it largely undermines any value that  
10 building ballots on an air-gapped network could provide.

11 Q. Why is that specifically?

12 A. Well, these computers that people are working on in their  
13 homes are outside the secure facilities that the Secretary of  
14 State maintains for ballot building. The ballots have to be  
15 brought into the secured facility on USB sticks. And  
16 Mr. Barnes testified that those USB sticks he copies the data  
17 through his public internet-connected computer in order to  
18 bring them into the air-gapped network.

19 That means that the election programming for every county  
20 that is programmed by those external contractors, which he  
21 testified included I believe every county during the November  
22 election, has to travel through an internet-attached computer  
23 where it could potentially be tampered with in a way that would  
24 spread malware to voting machines.

25 Q. Along the same lines, do you have an opinion about the



1 process Mr. Barnes described for the way that he transfers  
2 files using his own USB stick?

3 **A.** Yes. So the process that he described yesterday at the  
4 hearing exposes the data unfortunately to tampering in a number  
5 of ways. Although he mentioned using a USB stick that has a  
6 lock, presumably a write protect switch. He has to have it  
7 unlocked in his internet-attached computer in order to format  
8 it in order to copy files to it.

9 All of that exposes both the data and potentially the USB  
10 stick to tampering with by attackers or to being infiltrated  
11 with malware that could spread into the rest of the election  
12 system.

13 **Q.** And was the process you described your understanding --  
14 your previous understanding of his process, or were there any  
15 differences?

16 **A.** The process was with the additional detail that he  
17 provided yesterday even less secure than I had previously been  
18 led to believe.

19 **Q.** Have you reviewed Mr. Beaver's declaration in this case?

20 **A.** Yes, I have.

21 **Q.** Are the protections including end point and others that he  
22 describes sufficient in your opinion to protect the election  
23 system?

24 **A.** No, they are not.

25 **Q.** Moving now to the GEMS database, in mid-July you received

1 copies of what the state represented to be the current GEMS  
2 databases; is that right?

3 **A.** That's correct.

4 **Q.** Have you had a chance to review those in depth and to  
5 conduct a thorough analysis of them?

6 **A.** Not in depth. Not yet. That is analysis that is still in  
7 progress. We have only had the databases for a few days while  
8 I've been in Michigan because of the other demands of this  
9 case.

10 **Q.** Have you been busy on other things in this case?

11 **A.** Yes.

12 **Q.** Based on the limited review you've had time to do so far,  
13 what, if any, vulnerabilities have you identified on the GEMS  
14 databases?

15 **A.** Perhaps the biggest vulnerability in the GEMS system is  
16 that in the databases that I have reviewed is that contrary to  
17 the expressed position of the state that there was something  
18 unique to Georgia about these databases that would -- in  
19 their -- it is their assertion make it more difficult for  
20 attackers to infiltrate, there is actually nothing whatsoever  
21 unique about the structure of the Georgia GEMS databases. It  
22 is identical to the structure of databases in several other  
23 states, including databases that are public on the internet.

24 **Q.** When you received the GEMS databases, the Secretary of  
25 State provided you with a password to open the encrypted

1 contents of the CD; is that right?

2 **A.** That is true.

3 **Q.** Have you reviewed Georgia's Secretary of State's password  
4 policies?

5 **A.** I have.

6 **Q.** Did the password the Secretary of State provided meet  
7 their own password protocols?

8 **A.** I think it did not, no.

9 **Q.** Would you be comfortable describing generally how it did  
10 not meet the protocols.

11 **A.** Well, among the password policy rules that the state has  
12 implemented is that passwords should not contain the -- the  
13 name of the Georgia Secretary of State's office, those words or  
14 things derived from it. And that was not true of the passwords  
15 that the state used to protect the database on its way to me.

16 **Q.** Moving now to talk briefly about Dr. Shamos' deposition  
17 testimony and declaration, have you reviewed the declaration  
18 Dr. Shamos put forward?

19 **A.** Yes, I have.

20 **Q.** And did you attend his deposition?

21 **A.** Yes, I did.

22 **Q.** Would you join Dr. Shamos in recommending a forensic  
23 analysis, quote, involving the type of AccuVote DREs that are  
24 used in Georgia to look for malware?

25 **A.** I would. That might reveal evidence of malware.

1 Q. And Dr. Shamos says in his declaration that you haven't  
2 put forward a concrete risk scenario for the operation here in  
3 Georgia.

4 How do you respond to that?

5 A. Well, so putting forth a single concrete risk scenario  
6 doesn't really make sense because security is an asymmetric  
7 kind of question. As an attacker -- an attacker just needs to  
8 find one way that works to get into the parts of the system he  
9 wants.

10 But as a defender, you need to defend against every single  
11 one of those potential ways in. It is like you have to make  
12 sure all of the doors, all the windows are locked and barred.

13 Q. In other words, it would be incomplete to just put one  
14 risk scenario forward?

15 A. That is what I'm saying, yes.

16 Q. Did you prepare some slides for your testimony today?

17 A. I did.

18 MS. CHAPPLE: Your Honor, may I approach?

19 THE COURT: Yes.

20 Q. **(BY MS. CHAPPLE)** So there are four slides here. But we  
21 will go very quickly to Number 4. But first let me lay the  
22 foundation.

23 And were you able to -- I think we're working on getting  
24 them up on the projector.

25 Are these slides based on information from depositions,

1 declarations, and testimony last year?

2 **A.** Yes, they are.

3 MS. CHAPPLE: I would like to move these slides into  
4 evidence as Exhibit 12.

5 THE COURT: Let me see them first. They can be  
6 demonstrative evidence. We'll see --

7 MR. TYSON: We're looking at them.

8 THE COURT: They haven't looked at them yet.

9 MS. CHAPPLE: Right.

10 THE COURT: And I haven't looked at them. So why  
11 don't we just treat them for now as demonstrative evidence, and  
12 then we'll proceed.

13 Are we having technical issues?

14 MS. CHAPPLE: I think we are.

15 COURTROOM DEPUTY CLERK: We can use the document cam  
16 if we can.

17 MS. CHAPPLE: We can also go ahead with the hard copy  
18 while they -- whatever Your Honor prefers.

19 THE COURT: Have a different one of your team working  
20 with the document camera if you can't pull it up so that the  
21 audience who has bothered to be here can see it.

22 MS. CHAPPLE: Thank you.

23 THE COURT: I appreciate that you are trying to keep  
24 the 18 minutes. But I still have to -- this is an important  
25 witness, and I still have to understand.

1 MS. CHAPPLE: Yes. Absolutely.

2 **Q. (BY MS. CHAPPLE)** Okay. This first slide is a  
3 representation of -- or I'm sorry. Can you walk very briefly  
4 through this first slide just saying what it is?

5 **A.** The first slide shows the information flows that the  
6 California Secretary of State's office involving --

7 **Q.** I'm sorry.

8 **A.** -- the election system and explains some of the ways in  
9 which an infection could be introduced in the system and lists  
10 some of the mitigations that are inadequate.

11 **Q.** At the Secretary of State level?

12 **A.** At the Secretary of State level.

13 **Q.** I'm going to turn now --

14 THE COURT: You said California. Are you talking  
15 about --

16 **A.** I'm sorry. Excuse me. Georgia Secretary of State. I'm  
17 reading the California Secretary of State code review line  
18 below it.

19 **Q. (BY MS. CHAPPLE)** The second slide -- let me straighten it  
20 out. Can you give the same level of detail regarding the  
21 second slide?

22 **A.** It is the same questions about the county level GEMS  
23 systems are diagrammed and outlined in this slide.

24 **Q.** So the potential infection points and the inadequate  
25 mitigations?

1     **A.**    That is right.

2     **Q.**    And then this third slide?

3     **A.**    The third slide discusses the potential infection routes  
4     and inadequate mitigations as applied to individual voting  
5     machines in Georgia.

6     **Q.**    Thank you.  And then this is the slide that we will  
7     discuss.  Can you please walk the Court through this slide?

8     **A.**    So the last slide brings the entire system together and  
9     summarizes some of the most important ways that malware could  
10    spread through the system and what it could do.

11            We start at the top with this Georgia Secretary of State's  
12    office where there are risks from where the state's central  
13    GEMS system is maintained.  There is a risk that malware could  
14    be spread into the system from the internet via an attacker who  
15    was able to exploit the kinds of weaknesses that Ms. Payton's  
16    testimony examined.

17    **Q.**    I'm sorry.  Could you give a little more detail regarding  
18    that aspect of this.

19    **A.**    Yes.  So Ms. Payton's company's security analyses of the  
20    Secretary of State's network found in November 2017 that her  
21    group was able to hack into the Secretary of State's computer  
22    network from the outside and gain complete domain administrator  
23    access to their network.

24            With that access, an attacker could spread -- could spread  
25    an infection or could reach computers within the Secretary of

1 State's domain, including Mr. Barnes' computer, which was part  
2 of that network on which he copies data from his contractors  
3 into the GEMS network.

4 **Q.** And would the remediations that we have heard about  
5 yesterday do anything to correct what would -- what could  
6 already be in there from such an attack?

7 **A.** No. If an attack has already spread through that route,  
8 it could still be there affecting machines to this day.

9 **Q.** Can you continue?

10 **A.** Yes. So that attack could potentially spread through the  
11 USB stick into the GEMS network and thereby infect the CDs that  
12 are sent out to counties in order to load into their GEMS  
13 system. That is not --

14 **Q.** Were there anything about the CDs that would make them  
15 particularly vulnerable?

16 **A.** Yes. So I noted that the CDs -- that the way the CDs are  
17 encrypted by the Secretary of State's office is a little bit  
18 unusual. And we got to see this with the CDs that were  
19 transferred to us with the GEMS database copies on them, as  
20 well as in Mr. Barnes' testimony yesterday.

21 So the way that these encrypted CDs work, there's actually  
22 a program on the CD that is run by the recipient in order to  
23 decrypt the password and enter the data. If an attacker were  
24 able to either infect -- to infect the system on which the CD  
25 was created, they could essentially implant a virus into that



1 decryptor program, which would then spread to the recipient  
2 when they went to decrypt the CD.

3 That is unusual. That is not how most forms of encrypted  
4 data transport are implemented.

5 **Q.** And this slide also discusses risks to the DREs  
6 themselves?

7 **A.** Yes, it does.

8 **Q.** Would you please walk through those.

9 **A.** Yes. So the DREs themselves can be infected we know from  
10 previous research and published reviews in California and Ohio  
11 from a -- from the memory cards that election officials load in  
12 before every election, which if the files on those cards are  
13 infected with malware it can -- it can infect and load itself  
14 into the DREs in a persistent way that will infect not only the  
15 votes in the current election but could also affect future  
16 elections.

17 The machines can also be infected by someone who has brief  
18 physical access to them at any time before votes are -- before  
19 they are used for the last election. And that infection too  
20 can be done in a way that would persist over time.

21 Or someone who just had brief physical access to the  
22 memory cards that are loaded in, even if they didn't have  
23 access to the GEMS system itself, could infect those cards in a  
24 way that would spread malware into the machines.

25 And this could -- the malware that could be spread through

1 these routes could alter vote totals. It could sabotage the  
2 machine so that they wouldn't work properly or wouldn't even  
3 turn on.

4 **Q.** And has anything that you've seen in any of the  
5 submissions from the defendants or testimony -- has anything  
6 changed -- have you seen anything that would suggest that these  
7 risks would not continue to be at issue after the risk analysis  
8 and other remediations that they have put forward?

9 **A.** No, unfortunately not. I think even the totality of the  
10 mitigations doesn't change my opinion. The system is highly  
11 vulnerable.

12 **Q.** And in your opinion, what, if anything, could the state do  
13 to reliably secure at this point the current DRE-based system  
14 before this fall?

15 **A.** I don't think there is anything that the state could do to  
16 secure the current DRE system unfortunately. The  
17 vulnerabilities just exist at too many levels. And the system  
18 is too large and complex with not only the Secretary of State  
19 but 159 counties and 27,000 machines attached to those  
20 counties, all of which are potential points of infection.

21 **Q.** And do you have an opinion on the continued use of GEMS?

22 **A.** I think GEMS is obsolete software that is not wise to  
23 continue using.

24 **Q.** And, similarly, do you have an opinion on the continued  
25 use of AccuVote TSx scanners?

1     **A.**    The TSx DREs you mean?

2     **Q.**    Yes.

3     **A.**    The TSx DREs are unsafe to use.

4            THE COURT:  But you were talking about the scanners  
5 or we're talking about -- I'm trying to make sure --

6            MS. CHAPPLE:  I can ask also about the scanners, Your  
7 Honor.

8     **A.**    The TSx is the touchscreen model.  And the scanner is the  
9 OS.

10    **Q.**    **(BY MS. CHAPPLE)**  Do you have an opinion on the continued  
11 use of the AccuVote-OS scanners?

12    **A.**    The AccuVote-OS because it has a voter-verifiable paper  
13 trail can be used safely so long as it is robustly audited.

14    **Q.**    And, finally, what is your opinion regarding the safest  
15 most secure method of voting?

16    **A.**    The safest most secure method in my assessment is precinct  
17 count optical scan.

18    **Q.**    And why is that?

19    **A.**    Because a precinct count optical scan system generates two  
20 very different kinds of records of every vote and right in  
21 front of the voter:  A voter-marked ballot that the voter has  
22 completed themselves and then electronic scan of that ballot  
23 that is stored in a computer memory.

24            And as long as we audit rigorously these two records to  
25 make sure they reflect the same election outcome, an attack

1 that would change the election result would be very difficult  
2 to carry out because it would have to manipulate both very  
3 different kinds of records at the same time and in a way that  
4 agreed.

5 MS. CHAPPLE: Thank you, Dr. Halderman. No more  
6 questions.

7 THE COURT: Mr. Brown, is anyone from the Coalition  
8 going to be asking questions?

9 MR. BROWN: No, Your Honor. Thank you.

10 MR. TYSON: Your Honor, I have a rather lengthy  
11 cross-examination of Dr. Halderman. Do you want to go ahead  
12 and just proceed with that?

13 THE COURT: No. We could wait.

14 Would you mind if I just get clarification on a few  
15 things beforehand --

16 MR. TYSON: Certainly.

17 THE COURT: -- on my time. Could we just get the  
18 picture back up.

19 MS. CHAPPLE: The final slide?

20 THE COURT: Right.

21 I just want to talk a little bit about Mr. Barnes'  
22 insertion -- method of reproduction in getting the information  
23 from -- the ballot from his contractors.

24 And my impression was he viewed the -- his computer  
25 as air gapped -- his private computer as air gapped. I'm not

1 sure under Dr. Shamos' definition that that is air gapped.

2 I'm just trying to understand. Your concern was that  
3 he was using the USB stick and sticking it in. Was it your  
4 understanding that he was connected to the internet?

5 THE WITNESS: Mr. Barnes referred I thought in my  
6 opinion quite clearly to his putting the USB sticks into his  
7 computer on the Secretary of State's public network. He  
8 referred to the way that the USB sticks were, he saw them being  
9 scanned as he put them in, which the state's witnesses have  
10 testified or it may be in the -- in Mr. Beaver's declaration  
11 only is implemented on the public-facing computer, not on the  
12 air-gapped -- the so-called air-gapped network.

13 MR. CROSS: Your Honor, it if helps, I don't think  
14 there is any dispute that the computer that Mr. Barnes is  
15 plugging the USB drive into is his internet-connected  
16 public-facing computer.

17 THE COURT: I just want to make 100 percent sure.

18 MR. RUSSO: I think it depends on which computer  
19 we're talking about and at which point.

20 THE COURT: I'm sorry. I just didn't catch anything  
21 you said.

22 MR. RUSSO: I think it depends on which computer  
23 we're talking about. There is an internet -- a public-facing  
24 computer that Mr. Halderman, I think, is referring to where he  
25 is talking about -- excuse me -- Dr. Halderman where he is

1 referring to the scan and so on and so forth where he pulls the  
2 data from the voter registration system or from the third  
3 parties. When they provide him a CD, he puts it on the  
4 public-facing computer is what he was saying. And then he puts  
5 that onto the flash drive, which then goes into the private  
6 computer, the private computer being the GEMS -- the GEMS  
7 server, the air-gapped computer, which there may be some  
8 dispute over whether it is air gapped or not, but that is what  
9 we are referring to as the GEMS.

10 THE COURT: But when his contractor -- a member of  
11 his three-person contractor staff gives him a thumb drive or  
12 some other similar device, is he -- what is your understanding  
13 as to what -- I mean, I went through this at length yesterday.  
14 But I still want to make 100 percent sure what your  
15 understanding as to what the state's representation is as to  
16 what happens next.

17 MR. RUSSO: Yes, Your Honor. My understanding is  
18 that the state has their -- has the third-party vendors who are  
19 on their air-gapped computers themselves. They built the --  
20 assist with building the ballot, provide the CD or the flash  
21 drive to Mr. Barnes. Mr. Barnes puts it into the state's  
22 public-facing computer. And at that point whatever the state's  
23 system does that is in Mr. Beaver's affidavit occurs. It is  
24 scanned for malware. And then Mr. Barnes puts it onto a  
25 formatted flash drive and from there into the air-gapped

1 system.

2 THE COURT: And there is some dispute about whether  
3 his system is air gapped or not?

4 MR. RUSSO: Yes.

5 MR. CROSS: I'm sorry.

6 THE COURT: But his GEMS --

7 MR. RUSSO: So there's a question -- I guess there  
8 will be a question as to whether -- if there is malware that is  
9 getting around, whatever the systems are the state is running  
10 on that public-facing system. But -- so I think that is  
11 probably where the rubber meets the road.

12 THE COURT: Wait a second. I want to make sure I  
13 understand what they believe the facts are and then you can say  
14 anything else.

15 MR. CROSS: If it helps, Your Honor, I think what  
16 Mr. Russo said is accurate acknowledging that we disagree that  
17 any of that is air gapped. That is an issue of fact for the  
18 Court.

19 THE COURT: I understand.

20 MR. CROSS: But the point you are focused on, when  
21 the flash drive or CD comes in from the ballot builders, that  
22 is getting plugged into the public internet-facing computer.

23 THE COURT: All right. And when the county offices  
24 send in their information, that is going into -- where is that  
25 going?

1 MR. RUSSO: So that -- so Mr. Barnes testified  
2 yesterday they receive the CDs. If it is -- or if it is the  
3 results, the results go into a different system, the Election  
4 Night Reporting system. That's the website that you see  
5 online.

6 The CDs that are from the county GEMS databases, the  
7 state collects them. They don't do anything with them  
8 unless -- if they do want to look at them though, which they --  
9 you know, whatever they do, they create a separate air-gapped  
10 system. They do not go on the state's air-gapped system. They  
11 go -- I mean, they do not go on the GEMS system. They go on a  
12 different one that is built is what he testified to.

13 MR. CROSS: I think the key point, Your Honor, is  
14 that when those GEMS databases and the ballots come in from the  
15 builders, the third parties who work in their homes, that gets  
16 plugged into a computer that is connected to the internet.  
17 That then moves from the public-facing computer to the GEMS  
18 server.

19 THE COURT: All right. All right. I just wanted to  
20 make sure I understood before you ended up examining the  
21 witness and I ended up interrupting you.

22 MR. CROSS: I thought it might help because I didn't  
23 think those facts were in dispute. It is really a dispute  
24 about the sufficiency.

25 THE COURT: Is there any objection to the plaintiffs



1 introduction of this exhibit?

2 MR. TYSON: I don't believe so, Your Honor. I'm  
3 planning to cross Dr. Halderman on it.

4 THE COURT: Do you want to just tell me when we  
5 start -- commence?

6 MR. TYSON: Yes, Your Honor, if that would be all  
7 right.

8 THE COURT: Do you have an exhibit number?

9 MS. CHAPPLE: 12.

10 THE COURT: 12. Because even -- I will just remind  
11 you that even if something gets declined as an exhibit I need  
12 to have an exhibit number.

13 MS. CHAPPLE: Yes, Your Honor. Thank you.

14 May I take this off or should we leave it for after?

15 THE COURT: You can take it off.

16 MS. CHAPPLE: Great.

17 MR. CROSS: Are we stopping for lunch?

18 THE COURT: We're going to stop for lunch, and we're  
19 going to start at 1:15.

20 MR. BELINFANTE: Your Honor, right before you stop,  
21 you reminded me -- and we can do this later. I forgot to  
22 tender into evidence the exhibit we had for Mr. Finley. I can  
23 do that now or later. I just --

24 THE COURT: Sure. They objected to it or not?

25 MR. BELINFANTE: They have not. I would just move to

1 enter Defendants' Exhibit 4, which is the statement from the  
2 Secretary of State of California.

3 MR. BROWN: No objection, Your Honor.

4 MR. MANOSO: Your Honor, it is obvious -- we object,  
5 Your Honor. We object to hearsay.

6 THE COURT: All right.

7 MR. BELINFANTE: It is a government document.

8 THE COURT: It is a government document. I don't  
9 know what it is. So let me see it and let me just change the  
10 begin time because -- and that it will be 20 after 1:00 so that  
11 people can actually get some lunch. Thank you.

12 COURTROOM SECURITY OFFICER: All rise.

13 **(A lunch break was taken.)**

14 THE COURT: Have a seat. Before you begin, I just  
15 wanted to just touch base about the contracts I had asked for.  
16 Are those going to be coming?

17 MR. TYSON: Yes, Your Honor. I apologize. I was  
18 going to raise this earlier with you. What we have is the  
19 contract with PCC is apparently hundreds of pages of  
20 attachments and various components.

21 The feature that Mr. Beaver was talking about in  
22 terms of audit capacity is addressed by moving the hosting from  
23 PCC to a vendor under the control of the Secretary of State  
24 directly. So what I have is --

25 THE COURT: But it is to another vendor?

1 MR. TYSON: It is the state's data center. I'm  
2 sorry, Your Honor. And so I have the contract with that  
3 vendor. But there is not a provision that says you get to  
4 audit this in the contracts that was addressed by shifting the  
5 control of the data. So I mean if that's what you are looking  
6 for, we're happy to do that. Or I can provide all the various  
7 pieces. But I wanted to address your needs given the length of  
8 the attachments.

9 THE COURT: Do you have something -- like you have  
10 something that -- at least if you have a tab that indicates  
11 where you think it is different or the same or --

12 MR. TYSON: Yes, Your Honor. So what I have is a  
13 cover letter from the Secretary of State canceling two of the  
14 pieces that included hosting and then the new agreement that  
15 has the new hosting provider. If you want me to provide that  
16 to the Court --

17 THE COURT: Yes. And whatever the language is as to  
18 the auditing. But you are saying it is not -- it is not there?

19 MR. TYSON: The auditing is in the language for the  
20 new hosting setup. Where now that the data will be under the  
21 control of the Secretary of State's office, the only function  
22 PCC continues to fulfill is a licensing function for the  
23 software and yearly maintenance.

24 And so since everything is housed in the Secretary of  
25 State's data center, they can always audit their own security

1 in their own center.

2 THE COURT: Let me look at the materials. Maybe it  
3 will be clearer.

4 MR. TYSON: Thank you, Your Honor.

5 THE COURT: All right. And I don't have to have them  
6 this moment.

7 But -- all right. Was there an objection to -- was  
8 it 12?

9 MR. TYSON: Yes, Your Honor, to 12. We do object.  
10 This is -- we have no problem with it being a demonstrative.  
11 But since it is a summary of other evidence, we don't believe  
12 it is evidence itself, that it should be admitted as such.  
13 We're fine with it coming in as a demonstrative and it being  
14 considered but not as an exhibit admitted into evidence.

15 MS. CHAPPLE: We're fine with that, Your Honor.

16 THE COURT: All right. Exhibit 12 then just will be  
17 introduced solely as demonstrative evidence. As to the -- I'm  
18 not sure what the purpose of introducing Defendants' Exhibit 4  
19 is, which is the press release, since the witness who had  
20 personal knowledge of what happened was not impeached with  
21 this. And he simply explained what happened. So I don't  
22 really know that it has independent evidentiary value unless it  
23 is explained to me.

24 MR. BELINFANTE: As Your Honor indicated, we read it  
25 into the record. He agreed with it. So we're happy to have

1 it. And we think it is relevant. But --

2 THE COURT: I just -- he -- there is a lot of other  
3 things here. And I just don't know that -- since he agreed and  
4 explained what the recertification was, I just think that there  
5 is no independent evidentiary value of it. So I'm going to  
6 decline to admit Defendants' Exhibit 4. But we'll keep it here  
7 someplace.

8 And you can go ahead and proceed. Thank you.

9 MR. TYSON: Thank you.

10 THE COURT: And somebody sent something to whoever  
11 your contacts at the state are about the bond issue that I --

12 MR. TYSON: Yes, Your Honor.

13 MR. BELINFANTE: We're working on that still.

14 THE COURT: Go ahead. Sorry.

15 CROSS-EXAMINATION

16 BY MR. TYSON:

17 **Q.** Good afternoon, Dr. Halderman. I'm Bryan Tyson, one of  
18 the lawyers for the state in this case.

19 **A.** Good afternoon.

20 **Q.** I thought since we obviously are on different sides in  
21 this case I would start with some things that I think we can  
22 all agree on about security.

23 And so, first, you heard Ms. Payton testify yesterday that  
24 everything is hackable; correct?

25 **A.** I did.

1 Q. And you would agree with me, wouldn't you, that every  
2 computer system has vulnerabilities; right?

3 A. Yes. There are degrees of vulnerability. But I don't  
4 think there has yet been made an utterly impervious system.

5 Q. And you would agree with me, wouldn't you, that every  
6 election system has vulnerabilities too; correct?

7 A. Again, there are shades of gray. But yes.

8 Q. So you would say it is a range? Security is a sliding  
9 scale? Is that a fair thing to say?

10 A. That it isn't -- it isn't binary.

11 Q. So would it be correct to say that it is not a matter of a  
12 secure system and insecure system; it is a more secure system  
13 and a less secure system?

14 A. I think that is true. But normally when we're talking  
15 about something being insecure, we're talking about it being --  
16 we use that as a way of expressing that it is not -- it is not  
17 amply secure to defend against the threats that it is going to  
18 face in practice.

19 Q. And so is insecure a term of art in the cybersecurity  
20 community?

21 A. A term of art? I would say it is a word we use in a  
22 certain way.

23 Q. And the way in which you use it again expresses degrees of  
24 security, not absolute insecurity versus absolute security;  
25 correct?

1 **A.** I guess I would have to agree with that.

2 **Q.** And you would agree with me, wouldn't you, that in your  
3 work on software and other kinds of vulnerabilities in the  
4 cybersecurity arena that sometimes when you find a  
5 technological vulnerability it can be remediated through a  
6 physical security measure; correct?

7 **A.** That is sometimes true.

8 **Q.** And so, for example, the memory card that you presented to  
9 the Court last fall, is that memory card protected by a  
10 password or encryption or any other technology?

11 **A.** The memory card that we -- protected against what?

12 **Q.** Against access. If anyone stuck it into a computer or  
13 into a PC card reader, would they be able to read the  
14 information on the card without entering a password?

15 **A.** They would be able to read some of the information on the  
16 card. That is true.

17 **Q.** And you consider that a vulnerability because someone can  
18 access it without a password; correct?

19 **A.** If what we are trying to secure is the data from being  
20 read, then yes, it is a kind of vulnerability if someone can  
21 read it with -- if someone can read it who is not supposed to  
22 read it.

23 **Q.** And so you mitigate that potential vulnerability by  
24 physical security measures? You keep it on your person? You  
25 keep it locked in your lab; correct?

1 **A.** Yes.

2 **Q.** You would agree with me, wouldn't you, that if you were  
3 given complete physical access to an unencrypted computer you  
4 could eventually gain access to all parts of it; correct?

5 **A.** Yes.

6 **Q.** And you would agree with me, wouldn't you, that all  
7 software has vulnerabilities; correct?

8 **A.** Yes.

9 **Q.** Would you agree with me that people with access are an  
10 important part of cybersecurity and security generally?

11 **A.** That people with access, yes. Because if you have access  
12 and you use that access, you can -- that is what's called an  
13 insider attack.

14 **Q.** And are processes and procedures around computer equipment  
15 also an important part of cybersecurity?

16 **A.** Yes, they are.

17 **Q.** And you would agree with me also that the ability to  
18 detect a cyber -- I'm sorry -- let me start over again.

19 You would agree with me that having an ability to detect  
20 an attack is an important part of cybersecurity as well;  
21 correct?

22 **A.** Yes.

23 **Q.** You would agree with me that sitting here today you don't  
24 have any evidence that a DRE in use in an actual election has  
25 ever been compromised by malware; correct?



1 **A.** A DRE in use in an actual election? No, I do not.

2 **Q.** And you would agree with me if the -- since your chart  
3 expresses concerns about the internet-public facing side of the  
4 Secretary of State's network, that improvements in the  
5 cybersecurity of the Secretary of State's network are relevant  
6 to the election system; correct?

7 **A.** That would be one way of mitigating some of the  
8 vulnerabilities, at least partially mitigating them, to have  
9 further improvements.

10 **Q.** And you heard Ms. Payton's testimony yesterday about Dell  
11 SecureWorks; is that correct?

12 **A.** Yes.

13 **Q.** And are having solutions like Dell SecureWorks and  
14 Fortalice red team efforts something that could be used to  
15 detect an attack?

16 **A.** The Fortalice red teaming -- I'm not sure the relevance to  
17 detecting an attack. But having -- having systems like  
18 SecureWorks in place, that is one thing that is I think a  
19 positive, although small, step because it is a security best  
20 practice that they are implementing.

21 **Q.** And it is at least a step towards a more secure network;  
22 correct?

23 **A.** It is a step.

24 **Q.** Let's talk a little bit about paper ballot systems. You  
25 talk about paper ballot systems in your declarations. It is

1 correct, isn't it, that you have never published a paper  
2 analyzing the security of paper ballot systems; correct?

3 **A.** No, that is not true.

4 **Q.** Can you tell me about a paper you have published regarding  
5 the security of paper ballot systems?

6 **A.** So the California top-to-bottom review papers of which  
7 that study, which is published and available at the California  
8 Secretary of State's office, included a thorough examination of  
9 the source code to the optical scanners used in Georgia,  
10 actually the AccuVote-OS system.

11 **Q.** All right. I was talking specifically about a -- let me  
12 clarify my term.

13 So is the California top-to-bottom review a study of  
14 vulnerabilities related to the use of a hand-marked paper  
15 ballot system?

16 **A.** That is a hand-marked paper ballot system. The  
17 AccuVote-OS scanners are a hand-marked -- that is the  
18 electronic component of a hand-marked paper ballot system.

19 **Q.** But the California top-to-bottom review only considered  
20 the electronic component, not the physical security components  
21 related to hand-marked paper ballots; correct?

22 **A.** The top-to-bottom review as a whole also considered  
23 physical security.

24 **Q.** But that wasn't part of your work on that?

25 **A.** My work was about the software source code and

1 vulnerability analysis.

2 **Q.** So it is correct to say that you have never published a  
3 paper regarding the physical security vulnerabilities of a  
4 hand-marked paper ballot system?

5 **A.** Is that true? That may be true.

6 **Q.** Sitting here today, you can't think of a paper where you  
7 have done research on that topic, have you?

8 **A.** I have done research relevant to that topic. But I may  
9 not have published a paper that is specifically focused on  
10 those questions. I have taught about it.

11 **Q.** So you would agree with me that election systems that use  
12 hand-marked paper ballots do have vulnerabilities; correct?

13 **A.** Yes. But those vulnerabilities can be -- those  
14 vulnerabilities compared to the vulnerabilities in a DRE system  
15 are of a totally different kind.

16 **Q.** So let's talk about some of those differences in  
17 vulnerabilities. In your declaration, you talk about precinct  
18 count optical scan systems.

19 THE COURT: I'm sorry. Which of the affidavits?

20 MR. TYSON: I believe that's the second declaration,  
21 Your Honor, attached to the reply brief, which would be 508-1.

22 **Q.** **(BY MR. TYSON)** Dr. Halderman, in Document 508-1, in  
23 Paragraph 32, you say that PCOS systems are less risky. And is  
24 that a statement that indicates you still think there are risks  
25 with PCOS systems?

1 **A.** Yes, there are risks. There's a risk that the -- that an  
2 attacker who had both a high-tech conspiracy, able to  
3 manipulate the scanner, and a broad low-tech conspiracy, able  
4 to manipulate ballot boxes across a large part of the  
5 jurisdiction, could change both records in the same way.

6 But I think because you have to compromise both records in  
7 the same way, as I explained in that declaration, that is much  
8 harder to pull off than an attack solely against an electronic  
9 system like a DRE.

10 **Q.** And so is that the basis for the statement later in that  
11 paragraph that you still need, quote, effective chain of  
12 custody procedures and rigorous auditing of the paper ballots?  
13 That is how you remediate that risk of the high-tech conspiracy  
14 you posited?

15 **A.** Well, so I don't know if I would categorize it so much as  
16 a mitigation. But it is having a rigorous audit coupled with a  
17 precinct count optical scan as a part of the entire election  
18 system that provides the best security in my view.

19 **Q.** And it is fair to say that that is a process or a  
20 procedure that kind of surrounds the technological aspects of  
21 the PCOS system; correct?

22 **A.** Well, the audit itself is a form of technology. But it is  
23 coupled with the precinct count optical scan methodology.

24 **Q.** And when you opined that PCOS systems offer excellent  
25 security, that doesn't mean zero vulnerabilities; correct?

1 **A.** No, it doesn't mean zero vulnerabilities.

2 **Q.** If a hand-marked paper ballot was marked again and  
3 overvoted between the time it was scanned at the precinct and a  
4 recount, that is still a vulnerability; right?

5 **A.** It is a kind of vulnerability. Although in that case,  
6 what could be done in a precinct count optical scan system is  
7 that workers can compare the electronic record and the paper  
8 record, know there is a discrepancy, and then investigate the  
9 cause of the discrepancy.

10 **Q.** You would agree with me that doing a hash compare of two  
11 different files is a valid way of ensuring files have not been  
12 changed; correct?

13 **A.** Depending on the kind of hash and depending on who is  
14 doing the comparison, there are a lot of -- there are a lot of  
15 question marks in just that statement. But it can be an  
16 important tool.

17 **Q.** In the course of this litigation, have you heard of a tool  
18 called GEMS Verify?

19 **A.** Yes, I have.

20 **Q.** And do you know how GEMS Verify works?

21 **A.** On a -- to a fairly good technical degree, I do.

22 **Q.** Can you explain that to the Court, please?

23 **A.** So GEMS Verify is a tool that was developed, I believe, at  
24 Kennesaw State that compares the hash of certain files on the  
25 GEMS server to what are believed to be -- hashes of what are

1 believed to be known good files.

2 Now, that is useful in identifying -- assuming GEMS Verify  
3 is working correctly and hasn't been tampered with and assuming  
4 there is no malware on the system where it is running, then it  
5 might be able to tell you that yes, these files are unchanged.

6 However, it can be compromised if there is malware running  
7 on the system where GEMS Verify is running or it can be  
8 compromised if there is malware that is simply hiding in files  
9 that aren't part of what GEMS Verify compares.

10 **Q.** Okay. Thank you.

11 Now, you have never actually observed DREs in use in a  
12 Georgia precinct on election day; correct?

13 **A.** Not with those qualifications, no.

14 **Q.** And so you have never personally observed the security or  
15 physical access to DREs that are in use in a Georgia election;  
16 correct?

17 **A.** I rely on the declaration of Mr. Bernhard who has for  
18 physical security of DREs preceding elections.

19 **Q.** So when you opine that Georgia's DRE system has  
20 vulnerabilities which make it incredibly insecure, you are  
21 relying on Mr. Bernhard's statements about physical security as  
22 part of that opinion?

23 **A.** Specifically for any statements that I've made that DREs  
24 in Georgia are not -- are -- only in part actually. Only in  
25 part. I have seen photographs -- I have seen photographs of

1 DREs as they were -- as they were stored prior to elections, I  
2 think, including in newspaper reports.

3 **Q.** But you've never personally gone to a facility in Georgia  
4 where DREs are stored; correct?

5 **A.** I haven't, no.

6 **Q.** Have you ever reviewed the State Election Board rules that  
7 govern the storage and use of DREs in the State of Georgia?

8 **A.** I can't remember whether I have or not.

9 **Q.** So you don't know for sure whether the physical security  
10 requirements surrounding DREs in Georgia can mitigate some of  
11 the vulnerabilities that you have identified; correct?

12 **A.** Based on Mr. Bernhard's description of what he witnessed  
13 when he visited a county facility where DREs were stored, based  
14 on what he describes, I conclude that the security is  
15 inadequate.

16 **Q.** And that is for 1 county out of 159; correct?

17 **A.** I don't have -- I have seen nothing to indicate that other  
18 counties are better secured.

19 **Q.** But you see nothing to indicate that there is any  
20 difference at all? You haven't visited each one; correct?

21 **A.** That is correct.

22 **Q.** Mr. Bernhard hasn't visited each one either; correct?

23 **A.** I don't know.

24 **Q.** Now, you maintain a secured facility in your lab, and we  
25 have had some discussions about that and with the Court on

1 calls before.

2 Does your secured facility include physical security  
3 measurements like limitations on physical access to certain  
4 individuals?

5 **A.** Yes.

6 **Q.** And does it include air-gapping computers in that lab?

7 **A.** It does.

8 **Q.** Does it include an independently secured room?

9 **A.** For certain things, yes.

10 **Q.** And an independently secured room is a room that is  
11 separate from the other portions of the lab?

12 **A.** Yes.

13 **Q.** Does your secured facility include video surveillance?

14 **A.** Yes, for certain things.

15 **Q.** Does it include motion detectors?

16 **A.** As part of the video surveillance, it does.

17 **Q.** Does it include facilities to physically lock computers?

18 **A.** Yes.

19 **Q.** Does it include seals on locked units?

20 **A.** We don't include seals, no.

21 **Q.** I'm assuming it has a lock on the door?

22 **A.** Yes.

23 **Q.** Is there an audit log of individuals who have access?

24 **A.** For some things, yes.

25 **Q.** So you take all of these actions to limit the physical



1 access to increase the physical security of what is inside the  
2 lab; correct?

3 **A.** I do.

4 **Q.** And limiting the physical access provides a mitigation of  
5 the technological vulnerabilities of whatever systems you might  
6 be analyzing inside the lab; correct?

7 **A.** It provides a kind of protection.

8 **Q.** When you say a kind of protection, do you believe that  
9 there is still security issues even with all those precautions?

10 **A.** Unfortunately, yes. I don't believe that the facility  
11 that we've set up could withstand a determined attack by a  
12 nation state. But fortunately I don't run elections out of my  
13 lab. I'm sorry.

14 **Q.** So you agree with me that your lab is not secure enough to  
15 withstand the attack of a nation state attacker?

16 **A.** Oh, absolutely I agree with you.

17 **Q.** And you are a leading expert in cybersecurity; correct?

18 **A.** I won't call myself that. But if you would like to.

19 **Q.** So it is correct to say that your opinions have nothing to  
20 do when you -- let me start that over again.

21 So when you reach your conclusions about the  
22 vulnerabilities of Georgia DREs, are you accounting for the  
23 physical security components of the election system at all when  
24 you are reaching those conclusions?

25 **A.** Yes, I am.

1 Q. And you are accounting for those even recognizing that  
2 they share many of the same features of your lab?

3 A. Yes. In fact, all the more so because I've tried to  
4 implement features myself and thought about who might be able  
5 to attack them and bypass them. And against the kinds of  
6 attackers that are facing the State of Georgia, I really  
7 wouldn't want to be in the state's position trying to defend it  
8 with systems that don't have a physical paper trail. It is  
9 just -- it is not tenable.

10 Q. Now, I want to turn next to the demonstration that you did  
11 for the Court back in September with the infected memory card.  
12 And I recognize and I'll signal for the judge that there are I  
13 know some security sensitivity issues you have, Dr. Halderman,  
14 regarding these questions.

15 A. Yes.

16 Q. I believe my questions are going to be at a high enough  
17 level that that would not be a problem. But if they are, just  
18 let me know and we can figure out a solution.

19 A. Thank you.

20 Q. Have you ever allowed an independent review of your  
21 malware?

22 A. No.

23 MR. CROSS: Objection, Your Honor. It literally just  
24 happened on Monday. I think the question was misleading  
25 because he wasn't thinking about the review that they

1 themselves did.

2 THE WITNESS: Oh, I'm sorry. That is true.

3 MR. TYSON: I didn't mean to mislead the witness.

4 Let me try that again.

5 **Q. (BY MR. TYSON)** Prior to the review by defendants' counsel  
6 or defendants' experts on Monday of the memory card, have you  
7 ever allowed an independent review of your malware?

8 **A.** Of the -- prior to that, of the malware that I used in the  
9 September demonstration, the answer is no. Although all of the  
10 vulnerabilities that the malware exploits are ones that were  
11 published in the California top-to-bottom review and then  
12 independently confirmed by the Ohio Secretary of State's  
13 review.

14 **Q.** And you would agree with me that researchers usually share  
15 findings about malware to in great detail try to help other  
16 researchers in the same space; correct?

17 **A.** That is a typical practice we share with other trusted  
18 researchers anyway.

19 **Q.** But you had not done that with your malware?

20 **A.** No. In fact, I write about this in a paper about ethical  
21 issues in voting security analysis. That because of the  
22 heightened sensitivity surrounding elections, it is quite  
23 typical for election security researchers to take a different  
24 tact.

25 **Q.** Are you familiar with the term red team exercise in the

1 context of cybersecurity?

2 **A.** Yes.

3 **Q.** And you have never allowed a red team exercise to look at  
4 your malware; correct?

5 **A.** A red team exercise typically would be attempting to break  
6 into a system, not to analyze a piece of software.

7 **Q.** Okay. All right. So when you began your demonstration  
8 for the Court last September, you began by saying a poll worker  
9 would load the ballot programming on the machine using a memory  
10 card; correct?

11 **A.** That is probably what I said. I don't have the  
12 transcript.

13 **Q.** And do you know who in Georgia is responsible for loading  
14 the ballots onto the memory cards and then placing those memory  
15 cards in the voting machines?

16 **A.** I think I have since learned that that typically happens  
17 at the county by a county worker rather than a poll worker.  
18 But it really doesn't make any difference from a spread of  
19 malware perspective.

20 **Q.** And so it is your understanding that the memory cards are  
21 inserted into the machines before the election at a county  
22 facility; correct?

23 **A.** That is my current understanding.

24 **Q.** And is it also your understanding that logic and accuracy  
25 tests are performed by election officials at the county prior

1 to an election?

2 **A.** Yes.

3 **Q.** Are you aware that Georgia memory cards are labeled with  
4 numbers that are tracked once they are inserted into a DRE?

5 **A.** I wasn't aware of that. But that doesn't have any  
6 implication for this malware attack vector as we are talking  
7 about it.

8 **Q.** Do you know if you can remove a memory card after the  
9 election is underway from a DRE without any sort of error  
10 message?

11 **A.** You might produce an error message depending on the mode  
12 that the -- that the machine is in. Although that is an error  
13 message that could be -- yes, it might well produce a log  
14 message or an error message.

15 **Q.** You would agree with me, wouldn't you, that someone  
16 wishing to insert an infected memory card would have to do that  
17 before it was opened for business on election day; correct?

18 **A.** Well, they could do it while it was open for business on  
19 election day too.

20 **Q.** Would they have to -- but you would agree with me they  
21 would have to insert it before the machine entered election  
22 mode; correct?

23 **A.** Well, they could just cause the error message.

24 **Q.** So is that a no?

25 **A.** I'm sorry. I missed the --

1 Q. What I'm trying to get to is: In terms of when this  
2 attack vector that you have identified there is a  
3 vulnerability --

4 A. Yeah.

5 Q. Once the election is underway, if someone removes a memory  
6 card to insert an infected memory card, would there be a  
7 detection mechanism for that? That is what I'm trying to get  
8 to here.

9 A. Actually I think it may be possible to remove and reinsert  
10 the memory card. Yes, it is possible to remove and reinsert  
11 the memory card without causing an error message if the machine  
12 is powered down while it happens.

13 Q. So an individual would have to power down a machine that  
14 was already in election mode, switch cards, and then boot it  
15 back up; is that correct?

16 A. Well, the machine is not necessarily going to be powered  
17 up the entire time between when the card --

18 Q. If you could just answer my question. Someone would need  
19 to power down the machine and then change the memory cards and  
20 then turn the machine back on; correct?

21 A. Well, if the machine is powered down when the person gets  
22 to it, they wouldn't have to power it down themselves.

23 Q. And the memory cards used for your demonstration is not  
24 the same thing as a voter access card; correct?

25 A. That's correct.

1 Q. And you have never designed malware that could be put on  
2 to a DRE through a voter access card; correct?

3 A. Not malware, per se. I have designed other forms of  
4 attack that work through the voter access card.

5 Q. Are those forms of attack limited to calling up the wrong  
6 ballot?

7 A. No.

8 Q. Your malware was created for a special mock election  
9 between George Washington and Benedict Arnold; correct?

10 A. That is true.

11 Q. And you set the correct date and time on the DRE when you  
12 are performing your demonstration; right?

13 A. I am not sure if it was set correctly.

14 Q. When you use a memory card in a DRE, are files on the  
15 memory card changed by running the election?

16 A. I'm sorry. Can you repeat the question?

17 Q. Sure. When you are using -- have inserted the memory card  
18 in the DRE and are voting in the election, when the election is  
19 concluded or when the election is ongoing, either stage, are  
20 files on the memory card changing?

21 A. Yes.

22 Q. And those files would be collecting ballot images I'm  
23 assuming; correct?

24 A. One file collects ballot images, and another is a kind of  
25 log file.

1 Q. Now, it is correct, isn't it, that you did not use a GEMS  
2 database to create the infected memory card used for the Court?

3 A. That is right. Instead, I used a program I created that  
4 stands in for the version of GEMS.

5 Q. And the malware that you used had a single election coded  
6 on it; correct?

7 A. That is true. It had a single election coded on -- well,  
8 excuse me. I don't know if I understand what you mean. The  
9 malware itself wasn't coded for a particular election. But the  
10 memory card was coded for a particular election.

11 Q. And that was my question. The memory card was coded for a  
12 particular election; correct?

13 A. Yes.

14 Q. Once you completed the mock election, you did not attempt  
15 to upload the election results into a GEMS server, did you?

16 A. No, I did not.

17 Q. You would agree with me that you have no evidence that  
18 self-propagating malware has been used in a DRE that was used  
19 in an actual election; correct?

20 A. I don't have evidence one way or another unfortunately  
21 because the machines just have not been examined to look  
22 forensically is that true and they don't produce a paper trail  
23 that would provide evidence if the electronic record had been  
24 changed.

25 Q. To clarify, my question was: Sitting here today, you



1 don't have any evidence that self-propagating malware has been  
2 used in a DRE in an actual election; correct?

3 **A.** I don't know one way or the other.

4 **Q.** You would agree with me that the malware you used is not  
5 in the category of an advanced persistent threat; right?

6 **A.** What do you mean? Advanced persistent threat is a  
7 category we use to describe a kind of attacker, not a kind of  
8 malware.

9 **Q.** Okay. So you would say that that is not in the same  
10 category because it is two different things?

11 **A.** Yeah. These are two different kinds of taxonomy.

12 **Q.** I believe you mentioned at some point that the malware  
13 took you over a year to create; is that right?

14 **A.** If you include the preliminary research that I did to  
15 discover vulnerabilities in the machines. Unfortunately a lot  
16 of those vulnerabilities have now been in the public record for  
17 the last decade.

18 **Q.** So when you testified that someone could launch this kind  
19 of attack, you are saying it is theoretically possible but you  
20 have never seen it done in an actual election; correct?

21 **A.** I think I'm saying something a little bit more than  
22 theoretical. But I have never -- what are you asking that I  
23 have never seen done?

24 **Q.** The type of malware that you used in your demonstration  
25 for the Court, you have never seen malware or have any evidence

1 that malware like that particular kind of malware has ever been  
2 used in an actual election; correct?

3 **A.** I don't know whether it has or not.

4 **Q.** But sitting here today, you don't know of any situation  
5 where that kind of malware has been used in a DRE in an  
6 election; correct?

7 **A.** I don't. But I can't rule it out either.

8 **Q.** You also described your potential malware or a potential  
9 malware -- there is a different category now -- in one of your  
10 declarations that could evade parallel testing by knowing the  
11 voter was following a script versus participating in an actual  
12 election.

13 Do you recall those statements?

14 **A.** I do, yes.

15 **Q.** Have you ever seen any article identifying what behaviors  
16 of actual voters are when using DREs?

17 **A.** Identifying what actual voter behavior is? I have seen  
18 articles about usability factors of DREs in actual elections  
19 that do talk to some degree about voter behavior.

20 **Q.** So it is correct, isn't it, that you have never seen a  
21 piece of software or malware that could detect whether it was  
22 being voted by an actual voter or by a script; correct?

23 **A.** I have never -- it is true I have never observed a sample  
24 of such malware that someone else has written. Although I have  
25 put some thought into how I would design such a piece of

1 malware if I were the attacker.

2 **Q.** And it is correct, isn't it, that the only thing you have  
3 identified about voter behaviors in your declarations is the  
4 pace of voting; correct?

5 **A.** That may be the only one I identify in my declaration.  
6 But there are all sorts of behaviors including the pattern of  
7 votes that people vote, how long they take to vote, whether  
8 they make errors that would be relevant to the design of the  
9 kind of malware you are contemplating.

10 **Q.** But it is correct, isn't it, that you have never designed  
11 malware that looks for voter behavior on an election system?

12 **A.** I have thought about how such malware would be designed,  
13 but I haven't written such malware.

14 **Q.** And you are not aware of anyone else who has designed  
15 malware for an election that evade parallel testing through  
16 that method; correct?

17 **A.** I have had conversations with colleagues who thought about  
18 the problem too. But I'm not sure they have gone ahead and  
19 written the actual malware. It would be -- it would be  
20 dangerous and wouldn't serve very much of a purpose.

21 **Q.** So I want to give you a hypothetical based on the malware  
22 that you used for the -- with the Court in September of 2018  
23 and see if I have this correct.

24 For the purposes of this hypothetical, I would like for  
25 you to assume that you were using the malware that you

1 demonstrated for the Court, not some theoretical other version  
2 of it and that there was no infection of the central election  
3 administration system. So this is limited to a one DRE  
4 infection.

5 **A.** Okay.

6 **Q.** First, you would need to know the candidates' races and  
7 ballot configurations that would appear on the GEMS database  
8 for that electronic ballot and that particular precinct,  
9 wouldn't you?

10 **A.** Well, not necessarily. The voting machine knows not only  
11 the candidates and races. But it knows the party affiliation  
12 of all of the different candidates. So it could be programmed  
13 without knowing those things to search for the race for, say,  
14 the office of governor and for the Democratic party, for  
15 instance, and to advantage the Democrats.

16 **Q.** Let me be clear: Your malware -- we're asking about your  
17 malware in September.

18 **A.** Oh, pardon me. I see. Only my September malware.

19 **Q.** Right. You needed to know the candidates' races and  
20 ballot configurations in order to program that malware because  
21 you didn't use a GEMS database; correct?

22 **A.** Well, no. So I needed to know those things in order to  
23 program the election onto it. The malware that I wrote is  
24 programmed to advantage a candidate in a particular position on  
25 the ballot.

1 **Q.** Let me be a little -- a little clearer on this. In the  
2 design of the infected memory card -- if you were going to  
3 design an infected memory card that could be inserted without  
4 detection, you would need to know the candidates and ballot  
5 combinations; correct?

6 **A.** Well, also no, not necessarily. So an infected memory  
7 card that could be inserted -- and here it sounds like this is  
8 diverting a little bit from the question about my particular  
9 malware.

10 But if I were to design a memory card that would just  
11 infect the machine, it wouldn't need to know anything about the  
12 ballot. You would just need to temporarily insert it, power on  
13 the machine, and then put the original one back in.

14 **Q.** So you would agree with me you would gain physical access  
15 to the DRE to do that; correct?

16 **A.** Well, no. In fact, you can also infect the machine  
17 without physical access and without knowing the other things on  
18 the ballot by modifying a file on the memory card that doesn't  
19 have anything to do with the actual contents of the ballot.  
20 That is another issue in the top-to-bottom review.

21 **Q.** Dr. Halderman, let me make sure I'm clear. You are saying  
22 the infection vector -- you do not need to have physical access  
23 to a DRE to infect it when the central administration system  
24 has not been infected? Is that your testimony?

25 **A.** All I would need is access to a memory card that would

1 later be put into the machine.

2 **Q.** But you still require physical access to one of those  
3 pieces of the election system; correct?

4 **A.** Either to the memory card, the machine, or -- and you're  
5 trying to exclude this, I understand -- to one of the GEMS  
6 servers or one of the pieces of media that is moving material  
7 among the GEMS servers or to an internet-attached computer  
8 that's upstream of them, et cetera.

9 **Q.** Dr. Halderman, you have conducted a review of the GEMS  
10 databases that the state provided to you; correct?

11 **A.** I have begun to conduct such a review.

12 **Q.** And you said a few minutes ago when Ms. Chapple asked you  
13 that the greatest vulnerability you have identified is the  
14 structure of the database; is that fair to say?

15 **A.** I have had time to look at very little but the structure  
16 of the database due to the other needs of the case so far.

17 **Q.** And it is correct, isn't it, that you haven't found any  
18 malware in any GEMS database from Georgia?

19 **A.** Not yet.

20 **Q.** Sitting here today, you haven't found any; correct?

21 **A.** Sitting here today, I haven't yet found any.

22 **Q.** You testified earlier about the password that was provided  
23 to you on those GEMS databases. Do you know what protocols the  
24 Secretary of State uses for the passwords on GEMS databases  
25 sent to counties?

1 **A.** No, I don't. I hope it would be at least as strong as the  
2 password they used for log-ins on their average desktop  
3 machine.

4 **Q.** It is correct, isn't it, that those CDs that were being  
5 brought to you were being physically transported by counsel for  
6 the state? So there was an additional layer of security beyond  
7 sending it through some other means; correct?

8 **A.** It is true that one of the CDs -- that both of the CDs  
9 were provided by counsel for the state.

10 **Q.** You would agree with me that physical security of  
11 transporting something personally like you do with your malware  
12 on the memory card is an appropriate physical security  
13 mechanism; correct?

14 **A.** It can be a useful security mechanism.

15 **Q.** Dr. Halderman, you have never been involved in counting  
16 hand-marked paper ballots through an optical scan system, have  
17 you?

18 **A.** What do you mean through an optical scan system?

19 **Q.** Have you ever worked as an election official in counting  
20 hand-marked paper ballots in an optical scan system?

21 **A.** I have -- I have worked as part -- as an auditor counting  
22 hand-marked paper ballots as part of an election system.

23 **Q.** In the counting process you were using, were you using  
24 scanners or were you counting them by hand?

25 **A.** This was examining them by hand after they had been

1 counted by a scanner. So as part of the process of doing a  
2 risk-limiting audit to confirm that the scanner had produced  
3 the right result.

4 **Q.** And you would agree with me, wouldn't you, that Georgia's  
5 current optical scanners are infrared scanners and do not take  
6 an image of the ballot; correct?

7 **A.** I am not sure that that is true of all of the optical  
8 scanners in Georgia. So I -- that they are what is called  
9 infrared scanners. That in part refers to -- that can refer  
10 to -- and the term is a bit ambiguous actually. That can refer  
11 to an older technology of optical scan.

12 **Q.** Are you aware whether Georgia has a requirement that all  
13 counties use the same election equipment?

14 **A.** Well, even for the AccuVote-OS, there are apparently two  
15 different models.

16 **Q.** And my question was: Are you aware of a requirement in  
17 the law about Georgia voting equipment being the same among  
18 counties?

19 **A.** Yes, I am.

20 **Q.** And your testimony is you don't know what kind of optical  
21 scanners Georgia currently uses; is that right?

22 **A.** They use the AccuVote-OS optical scanner. But even within  
23 that, there are -- depending on what year you bought them,  
24 there may be slight differences.

25 **Q.** So you don't know which version Georgia uses; correct?



1 **A.** I know Georgia has bought them over several different  
2 years.

3 **Q.** Can you please answer my question? You don't know what  
4 version Georgia uses; correct?

5 **A.** Whether it is -- I believe that it is the newer one.

6 **Q.** It is yes or no, Dr. Halderman. Either you know or you  
7 don't.

8 **A.** I will have to go back and look at the papers that have  
9 been filed.

10 **Q.** So sitting here, you don't know; is that correct?

11 THE COURT: If you want to look, that is fine. If  
12 you think you do know whether -- it is -- basically you are  
13 saying there are two models --

14 THE WITNESS: For purposes of this question -- excuse  
15 me, Your Honor.

16 For purposes of this question, I'll admit that I  
17 don't remember -- I don't know whether all of the models are  
18 the older type or the newer type of the OS. Although those two  
19 models have many commonalities for many questions. I know it  
20 is one or the other.

21 **Q. (BY MR. TYSON)** Thank you. You don't have any knowledge  
22 of Georgia procurement processes, do you?

23 **A.** Of Georgia procurement processes? Well, I know something  
24 about the RFP process that is going on for the new system.

25 **Q.** But in terms of the law related to procurement, you don't

1 have familiarity with that; correct?

2 **A.** Not beyond the request -- the RFP process currently.

3 **Q.** You're not offering an opinion for this Court about the  
4 feasibility of obtaining voting systems in any particular  
5 timeline under Georgia law for procurement; right?

6 **A.** I'm not offering an opinion about that.

7 **Q.** Have you ever studied the ways to manipulate paper ballots  
8 so that -- have you ever studied the ways to manipulate  
9 scanners that do not take images of ballots so that the count  
10 comes back incorrectly?

11 **A.** I have studied that.

12 **Q.** And are there physical ways that you can manipulate a  
13 paper ballot to evade or make the count be wrong on an optical  
14 scan machine?

15 **A.** Yes, that is true.

16 **Q.** And one of those ways would be ink that absorbs infrared  
17 light but is invisible to the human eye?

18 **A.** That might -- that might change the electronic count but  
19 would be detectable through an audit.

20 **Q.** So you would agree with me that optical scan ballots can  
21 be manipulated; correct?

22 **A.** Yes. It is possible one-by-one, for instance, to  
23 manipulate them. But it is detectable through a rigorous audit  
24 comparing the paper and electronic records.

25 **Q.** And if there was an audit that showed a discrepancy

1 between the paper and the electronic records, which record  
2 would control?

3 **A.** If there was a discrepancy, my view is that the  
4 discrepancy should be investigated. And which record is more  
5 credible should prevail. And there is going to be evidence  
6 that one record or the other has been tampered with if someone  
7 investigates the reason why the discrepancy occurred.

8 **Q.** Dr. Halderman, I'll hand you what we have marked as --  
9 actually, before I do this: Are you familiar with the report  
10 of the Select Committee on Intelligence for the U.S. Senate  
11 that was released yesterday?

12 **A.** I am familiar with it. I have to admit I have only  
13 skimmed it so far since it was only released yesterday, and we  
14 got out of the hearing quite late.

15 **Q.** I'll hand you what we have marked as Defendants'  
16 Exhibit 3. We're slightly out of sequence. So we'll be going  
17 from 3 to 5.

18 Dr. Halderman, is Defendants' Exhibit 3 consistent with  
19 the report that you said you had skimmed regarding elections  
20 from the Senate Intelligence Committee?

21 **A.** It appears to be, yes, the one that was released  
22 yesterday.

23 **Q.** If you could turn to Page 3 of that report. There are  
24 several redactions. But could you read the last sentence of  
25 Paragraph 1.

1           THE COURT: Redactions, I assume, are in the report  
2 that was available to the public?

3           MR. TYSON: Yes, Your Honor. This is the publicly  
4 released version.

5           THE COURT: So all the redactions reflected here  
6 are --

7           MR. TYSON: National security interest. Yes, Your  
8 Honor.

9     **A.** Yes. It says that the committee has seen no evidence that  
10 any votes were changed or that any voting machines were  
11 manipulated. And I assume this is referring to the 2016  
12 presidential election.

13     **Q. (BY MR. TYSON)** Okay. And if you could turn next to  
14 Page 36, one of the individuals identified in the report, just  
15 for interest of time, is a former special assistant to the  
16 President and cybersecurity coordinator named Michael Daniel.  
17 He is identified on Page 7 of that report.

18           But on Page 36, he is testifying -- it reports what he  
19 told the committee. In the middle of that page, you would  
20 agree with me that it says, while any one voting machine is  
21 fairly vulnerable as has been demonstrated over and over again  
22 publicly, the ability to actually do an operation to change the  
23 outcome of an election on the scale you would need to and to do  
24 it surreptitiously is incredibly difficult.

25           Do you agree with that statement?

1 MS. CHAPPLE: I'm sorry. I have to object to this as  
2 hearsay. And I also would like a little time to read the full  
3 paragraph, if I may.

4 MR. TYSON: Sure.

5 THE COURT: I'm sorry. Who is Mr. Daniel? Where is  
6 he described on Page 7?

7 MR. TYSON: His name was found on Page 7, Your Honor,  
8 yes.

9 THE WITNESS: Where can Mr. Daniel's biographical  
10 information be found?

11 THE COURT: Page 7.

12 THE WITNESS: Page 7. Thank you, Your Honor.

13 THE COURT: It is brief.

14 Yes?

15 MS. CHAPPLE: I'm objecting to it as hearsay if they  
16 are offering it for the truth of the matter asserted. We don't  
17 know -- Mr. Daniel is not here.

18 THE COURT: Well, you know, I haven't had the full  
19 report in front of me, and I didn't download it in the time  
20 that we had because I was working on actual evidence here.

21 But I think that certainly it is appropriate still  
22 for -- that counsel can ask him a question about whether he  
23 agrees on it. I don't know that it can be introduced at this  
24 point for the truth of the matter.

25 There are a lot of different opinions that are

1 explained here, and I think that when Mr. McCabe was originally  
2 interviewed he is trying to -- he seems to be talking about the  
3 additional heightened probing of internet -- he says on Page 7,  
4 by late September I guess we determined the internet connected  
5 to election-related networks in 21 states were potentially  
6 targeted by Russian government cyber actors. And I guess this  
7 is the part of the follow-up. I see Dr. Halderman was also  
8 interviewed at Page 42.

9 MS. CHAPPLE: Your Honor, part of the issue is that  
10 it is so heavily redacted that it is very difficult to know the  
11 full context for a lot of these statements. So to take it as  
12 the truth, it is just --

13 THE COURT: I'm not taking it as the truth. I'm  
14 assuming you are offering it -- asking him to comment on it.

15 MR. TYSON: I am, Your Honor.

16 THE COURT: And it may not be a complete statement of  
17 his views. I understand that because of the heavy redactions.

18 MR. TYSON: Yes, Your Honor. In terms of hearsay, we  
19 are at a preliminary injunction. We have heard from a lot of  
20 poll workers about what other people said. I think it is  
21 appropriate for the Court to take into account what was said in  
22 these contexts related to elections.

23 THE COURT: All right. Go ahead.

24 MR. TYSON: Thank you.

25 **Q. (BY MR. TYSON)** Dr. Halderman, having read that sentence

1 from Mr. Daniel, do you agree with Mr. Daniel's assessment?

2 THE COURT: I'm sorry. What page was it?

3 MR. TYSON: I'm sorry. Page 36.

4 **A.** So no, I don't agree with Mr. Daniel's assessment that it  
5 would be incredibly difficult. I think it would be more -- I  
6 think that this is a view unfortunately that is shared by --  
7 has been in the past shared by people with only a limited  
8 understanding of how election systems are coordinated across  
9 the level of an entire state through something like the GEMS  
10 system.

11 **Q.** (BY MR. TYSON) And if you could turn next to Page 40.  
12 There is a beginning of a section there entitled the security  
13 of voting machines.

14 **A.** Yes.

15 **Q.** On Page 41 into that section, the second bullet on that  
16 page, can you read the first sentence of that bullet, please?

17 **A.** The bullet that begins when state seven decommissioned its  
18 direct-recording electronic voting machines?

19 **Q.** I'm sorry. I was introducing the section on Page 40. On  
20 Page 41, the second bullet that begins DHS briefed the  
21 committee.

22 **A.** Yes, I see the paragraph.

23 **Q.** Can you please read the first sentence?

24 **A.** DHS briefed the committee in August 2018 that these  
25 results were in part because the hackers had extended physical

1 access to the machines, which is not realistic for a true  
2 election system.

3 **Q.** You would agree with me, wouldn't you, Dr. Halderman, that  
4 physical access as we discussed is important in terms of  
5 accessing an election system if it is not connected to the  
6 internet; correct?

7 **A.** Yes. But this paragraph is talking about exercises that  
8 the DEF CON voting village where -- where there were some  
9 demonstrations that I do think exceeded plausibility. Having a  
10 child hack into an election management system, that is not the  
11 threat we're talking about here.

12 THE COURT: So this is the -- DEF CON is the -- as I  
13 understand it, is the world's largest -- longest running  
14 underground hacking conference? Is that what it is?

15 THE WITNESS: That is what it is, yes.

16 **Q.** **(BY MR. TYSON)** Dr. Halderman, let's look next at  
17 Exhibit 12. Do you still have that up here with you, your  
18 PowerPoint presentation?

19 **A.** I do, yes.

20 **Q.** Let's look at the first page. And what you have  
21 identified on the very first page -- the first physical page of  
22 Exhibit 12 is possible methods of infection; is that fair to  
23 say?

24 **A.** Yes. These are some examples.

25 **Q.** And the first one you identify is Mr. Barnes' USB stick;



1 correct?

2 **A.** Yes. That is a shortened way of saying that the USB  
3 stick -- that other ways that he's moving data into the network  
4 could be a way of spreading an infection.

5 **Q.** And in your declarations, you have cited Stuxnet as a  
6 system that jumped an air gap.

7 Do you have any reason to disagree with Dr. Shamos'  
8 declaration that the system was actually programmed by a  
9 manufacturer instead of being transmitted over a USB stick?

10 **A.** Yes, I do have reason to disagree with Mr. Shamos'  
11 assessment.

12 **Q.** Let me ask you about Number B on your list. You say the  
13 infection could come from employee errors?

14 **A.** That's right.

15 **Q.** That's true of any election system, paper or electronic;  
16 correct?

17 **A.** Well, what do you mean paper?

18 **Q.** Let me clarify because that was not a clear question. I'm  
19 sorry.

20 In terms of manipulating vote counts or changing a count  
21 of a vote, an employee error is one way that a vote count could  
22 be off in a paper system or any other system; correct?

23 **A.** What I'm explaining here -- what I'm --

24 **Q.** Answer my question first. Could you answer my question  
25 first and then explain.

1 **A.** Well, I'm trying to understand your question but -- and  
2 how it relates to what I've written here. But yes, human error  
3 can result in errors in a system that involves paper ballots as  
4 well. Although it would be much more likely to be caught  
5 during a risk-limiting audit.

6 **Q.** And dishonest insiders is your next item there. Dishonest  
7 insiders are also a vulnerability for a paper ballot system or  
8 any other election system; correct?

9 **A.** Yes. But, again, it is a difference in kind. Here a  
10 single dishonest insider could change every vote in the State  
11 of Georgia. In a system based on optical scan that was  
12 appropriately audited, you would need an enormous conspiracy to  
13 change every physical ballot.

14 **Q.** And physical intrusion, D, is also a vulnerability for  
15 paper systems and for electronic systems; correct?

16 **A.** Again, yes. But it is a difference in kind once again.  
17 You need a single momentary physical intrusion to potentially  
18 infect every voting machine in the State of Georgia here versus  
19 you need an intrusion so large that someone -- that a very  
20 large number of people would have access to every single piece  
21 of paper.

22 **Q.** And you mentioned as, F, legacy KSU data. You heard  
23 Mr. Beaver's testimony yesterday that the GEMS ballot building  
24 system was entirely rebuilt after the KSU access of  
25 information; correct?

1 **A.** I've seen the GEMS databases, and they are dating back  
2 from KSU times.

3 **Q.** And to my question, my question was you heard Mr. Beaver's  
4 testimony that the GEMS ballot building system was rebuilt from  
5 the ground up after the KSU incident; correct?

6 **A.** He testified. But my -- I believe he was testifying as to  
7 the software and not as to the data. And the data itself is  
8 another potential vector by which malware could have been  
9 spread from KSU.

10 **Q.** But to this point, you have not found any malware in any  
11 GEMS database from Georgia you reviewed; correct?

12 **A.** Not to this point. Not in the first very brief period of  
13 the analysis. But there's a lot more work to do.

14 THE COURT: What is the period of analysis?

15 THE WITNESS: Well, Your Honor, as I wrote in my  
16 declaration about it, I think a complete analysis is likely to  
17 take several weeks by several of us. I have to this point had  
18 perhaps two days to interact with the database because of the  
19 travel associated with this case.

20 **Q.** **(BY MR. TYSON)** Turning to the next physical page,  
21 Dr. Halderman, you have what you describe as a county GEMS  
22 system.

23 And are you aware that county GEMS systems may not be  
24 connected by modem or phone lines?

25 **A.** I am aware they may not be, yes.

1 Q. Why does a modem and phone line appear on your chart here?

2 A. Because I'm aware that some of them are or have been in  
3 the past.

4 Q. So today you have not analyzed any county data -- county  
5 GEMS environments and found someone connected to a phone line;  
6 correct?

7 A. We have testimony about them having been connected.

8 Q. I'm asking about you personally. You haven't personally  
9 examined any county facility?

10 A. I'm relying on the testimony of -- the testimony from one  
11 of the state's witnesses in the last -- the last hearing.

12 MS. CHAPPLE: I'm sorry to object a little belatedly.  
13 I think it assumes facts not in evidence that the phone modems  
14 are no longer being used. I don't remember testimony to that  
15 effect.

16 MR. TYSON: I'm sorry. I believe Mr. Barnes had  
17 testified to that. And then there are state regulations that  
18 govern county GEMS databases and how they can be stored that  
19 would address that question.

20 MS. CHAPPLE: I'm sorry. I don't -- I don't believe  
21 we have seen the evidence that it has been eliminated.

22 THE COURT: All right. Well, this is something you  
23 can address in your case.

24 MR. TYSON: Certainly, Your Honor.

25 Q. **(BY MR. TYSON)** Now, the next page, Dr. Halderman, you

1 have options of ways that AccuVote machines could be infected?

2 **A.** Yes.

3 **Q.** And you have the infected county ballot programming, and  
4 then you have physical access. So, again, we agree physical  
5 access, if lacking an infected county ballot program, is  
6 necessary to infect a DRE; correct?

7 **A.** This isn't an exhaustive list of means of infecting the  
8 DRE. But those are two ways of infecting it.

9 **Q.** Are you changing your testimony from earlier that you had  
10 to have physical access to a DRE or to a memory card if you had  
11 not infected the county database?

12 **A.** I may have misunderstood your question if I said it was  
13 either one or the other because there are other means that  
14 someone could infect a DRE.

15 **Q.** What would those means be if the county ballot programming  
16 was not infected?

17 **A.** Well, for instance, the DRE may have been infected from  
18 the moment it was manufactured.

19 **Q.** Do you have any evidence that that is true of Georgia  
20 DREs?

21 **A.** I don't know one way or the other.

22 **Q.** Dr. Halderman, do you believe that an anomalous undervote  
23 in an election is sufficient evidence to say a system was  
24 hacked?

25 **A.** An anomalous undervote? I don't think on the basis --

1 what is an -- what do you mean?

2 **Q.** If there was an election -- assume for purposes of this  
3 question there was an election where the undervote in one  
4 statewide race was lower than it had historically been.

5 **A.** I see.

6 **Q.** Would you conclude from that fact alone that the election  
7 system had been hacked?

8 **A.** I would conclude that the reason for the undervote needs  
9 to be investigated and explained. And an attack on the  
10 election system is a possible explanation.

11 **Q.** But you would not conclude that the election system had  
12 been hacked based on that alone? You would need to know more;  
13 right?

14 **A.** That is right. That alone doesn't prove that the system  
15 has been hacked.

16 **Q.** Do you believe that an anomalous lack of an undervote --  
17 so instead of a roll-off on ballots, it stayed higher than it  
18 usually -- would be evidence that a system was hacked?

19 **A.** I think anomalous features in the election data in general  
20 are a reason to investigate and determine the cause.

21 **Q.** But standing alone -- an anomalous result standing alone  
22 is not sufficient evidence of a hack for you? You would need  
23 to know more; correct?

24 **A.** It wouldn't prove that the election had been hacked.

25 **Q.** Dr. Halderman, let me ask you just a couple of more

1 questions to wrap up here.

2 First, I believe we established you have never studied the  
3 physical security vulnerabilities of a hand-marked paper ballot  
4 election that resulted in you publishing a paper about it;  
5 correct?

6 **A.** I'm sorry. There are a bunch of qualifications there.  
7 The physical security?

8 THE COURT: Go ahead and ask the question again.

9 **Q.** (BY MR. TYSON) Sure. I'll ask it.

10 Dr. Halderman, I believe we established earlier that you  
11 have never published a paper regarding the physical security  
12 vulnerabilities of a paper ballot system; correct?

13 **A.** The physical security vulnerabilities of a paper ballot  
14 system? I have published papers that are mechanisms for  
15 addressing those vulnerabilities. But I haven't published a  
16 paper that is examining the vulnerabilities.

17 **Q.** And I believe we established that you have never observed  
18 or personally observed the processes used by Georgia or studied  
19 those processes for providing physical security to the DREs; is  
20 that correct?

21 **A.** The processes for providing physical security -- I have  
22 only reviewed the declaration of Mr. Bernhard.

23 **Q.** I think we agreed at the beginning that every voting  
24 system has vulnerabilities; correct?

25 **A.** To varying degrees.

1 Q. And you would agree with me that the National Academy of  
2 Sciences report on election systems, *Securing the Vote*, agrees  
3 that ballot marking devices that generate paper ballots are  
4 acceptable for use because they provide independent auditing;  
5 correct?

6 A. I think that is what it says. I don't have it in front of  
7 me.

8 Q. In your declaration in May, you stated that the only  
9 practical way to safeguard Georgia's upcoming elections was to  
10 require the use of optical scan ballots with auditing. Do you  
11 recall that statement?

12 A. I do.

13 Q. Isn't that contrary to what the National Academy of  
14 Sciences says? Because they also say that a ballot marking  
15 device system is an appropriate method of security as long as  
16 it generates a paper ballot.

17 A. So there has been new research since the National --

18 Q. Answer my question first and then explain. That is not  
19 consistent with what the National Academy of Sciences report  
20 says; correct?

21 A. Yes. Because there has been new research since the  
22 National Academy's result -- report that in my mind does call  
23 into question the security of ballot marking devices.

24 But -- does that answer your question?

25 Q. Yes.



1           You also say in your declaration that ballot marking  
2 devices are new and untested technology. But they have been  
3 around for decades, haven't they?

4     **A.**    What I was referring to was the use of ballot marking  
5 devices for all voters within a precinct, which is a new  
6 development in the voting system world.

7     **Q.**    And is it your testimony to this Court that hand-marked  
8 paper ballots are the only way to have a secure election  
9 system?

10    **A.**    I think that the only practical way to have a secure  
11 election system, given the current state of election technology  
12 and vulnerability, is to have one where the primary method of  
13 voting for individuals who can fill out a hand-marked paper  
14 ballot is a hand-marked paper ballot.

15    **Q.**    And you reached that conclusion having never published a  
16 paper regarding the vulnerabilities of hand-marked paper  
17 ballots and especially related to physical security; correct?

18    **A.**    The vulnerabilities of hand-marked paper ballots are going  
19 to be strictly less than the vulnerabilities of the system that  
20 incorporates a -- excuse me -- are going to be strictly -- I'm  
21 getting my logical direction wrong here.

22           The vulnerabilities in a system that is a -- what I'm  
23 referring to in that paragraph, hand-marked paper ballot that  
24 is optically scanned, are going to be strictly less than  
25 vulnerabilities of a system that only has an electronic record

1 or one that is a ballot marking device sitting between the  
2 voter and the piece of paper.

3 **Q.** And your conclusion that hand-marked paper ballots is the  
4 only way to have a secure election, is that just your personal  
5 belief and not based on any scientific review process?

6 **A.** Well, I have reviewed the security of a wide range of  
7 election systems. So --

8 **Q.** Would you agree -- I'm sorry.

9 **A.** -- it is based on my scientific experience reviewing the  
10 security of multiple modes of voting and modeling the threats  
11 against different kinds of voting systems.

12 **Q.** But you agree it is inconsistent with the recommendations  
13 of the National Academy of Sciences; correct?

14 **A.** Well, it is based on new information. So there may be  
15 some difference.

16 **Q.** But you would agree it is not -- it is not consistent with  
17 the National Academy of Sciences?

18 MS. CHAPPLE: Objection. Objection. Asked and  
19 answered.

20 MR. TYSON: I don't believe he has answered it yet,  
21 Your Honor.

22 MR. CROSS: Three times.

23 THE COURT: Answer it again. Is it inconsistent or  
24 not? I know you've given an explanation why it is different.

25 THE WITNESS: I see. Excuse me.

1           It may be inconsistent. I don't have the National  
2 Academy's report in front of me to confirm.

3           MR. TYSON: Thank you, Your Honor. I don't have any  
4 other questions.

5   REDIRECT EXAMINATION

6 BY MS. CHAPPLE:

7 **Q.** Just one question. Dr. Halderman, you were asked you have  
8 no evidence that a DRE used in an actual election has ever been  
9 compromised.

10           Has the state allowed you to conduct the forensic  
11 examination needed to look for that evidence here in Georgia?

12 **A.** Well, no. No, it hasn't. We need to actually look at --  
13 we need the opportunity to look at memory cards, at server disc  
14 images, at the internal memory of voting machines in order to  
15 conclude one way or another.

16           And that is -- even unfortunately a negative result there  
17 wouldn't necessarily rule out that it had happened. But if you  
18 wanted to exhaustively -- or if you wanted to have a rigorous  
19 forensic analysis, it would have to include all of those  
20 components.

21 **Q.** And to your knowledge, has the state allowed any  
22 independent computer scientist to conduct such an examination  
23 of GEMS, DREs, memory cards, or scanners in Georgia?

24 **A.** I don't believe it has.

25 **Q.** Then this is my final question: Have you seen any

1 evidence of any such examination by anyone -- by anyone for  
2 Georgia's GEMS, DREs, memory scanners, memory cards, or  
3 existing scanners?

4 **A.** No, I have seen no evidence that anyone has ever done a  
5 forensic analysis.

6 **Q.** I do have one more question. So turning again to, I  
7 believe it was, Defendants' Exhibit 4, the Senate report, and  
8 turning to Page 59, I'm going to read a sentence and ask you if  
9 you agree.

10 It says, as states look to replace HAVA-era machines that  
11 are now out of date, they should purchase more secure machines.

12 Would you agree with that?

13 **A.** Yes.

14 MS. CHAPPLE: Okay. Thank you. No further  
15 questions.

16 MR. CROSS: Catherine, you have to finish the  
17 sentence.

18 MS. CHAPPLE: There is another sentence. Paper --  
19 I'll continue the paragraph.

20 **Q. (BY MS. CHAPPLE)** Paper ballots and optical scanners are  
21 the least vulnerable to cyber attack. At a minimum any machine  
22 purchased going forward should have a voter-verified paper  
23 trail and remove or render inert any wireless networking  
24 capability.

25 Do you agree?

1 **A.** Yes, I do.

2 MS. CHAPPLE: Okay. Thank you.

3 THE COURT: Can you tell me which bullet that is?

4 MS. CHAPPLE: I'm sorry, Your Honor. It is the  
5 first -- it is the first bullet on the top of Page 59.

6 MR. TYSON: Just one brief question.

7 RE CROSS-EXAMINATION

8 BY MR. TYSON:

9 **Q.** Dr. Halderman, the bullet that Ms. Chapple just had you  
10 read, machines that include voter-verified paper trails include  
11 ballot marking device systems; correct?

12 **A.** Yes, they can include ballot marking device systems.

13 MR. TYSON: Thank you.

14 MR. BROWN: Your Honor, I have one.

15 THE COURT: Sure.

16 EXAMINATION

17 BY MR. BROWN:

18 **Q.** You were not shown the National Academy of Sciences  
19 report, were you, when you were questioned about it?

20 **A.** No, I wasn't.

21 **Q.** Dr. Halderman, let me hand to you my computer. And I'll  
22 refer you to --

23 **A.** That is a dangerous thing to do.

24 THE COURT: Go for it. Take a risk.

25 **Q.** **(BY MR. BROWN)** If you find anything on it, it is

1 Vincent's. I promise.

2 MR. TYSON: Your Honor, could we see what Mr. Brown  
3 is referring to? I'm sorry.

4 MR. BROWN: I am referring to Document 285-1,  
5 Page 108 of 188. It is a page from Securing the Vote,  
6 Protecting American Democracy by the National Academy of  
7 Sciences.

8 **Q. (BY MR. BROWN)** If you would read into the record the  
9 third complete paragraph.

10 MR. TYSON: Your Honor, could we get the page number  
11 of the National Academy of Sciences -- 108 of the report or 108  
12 of the document?

13 THE WITNESS: It says Page 80.

14 MR. TYSON: Thank you.

15 **A.** I'm sorry. I'm sorry. Which paragraph?

16 **Q. (BY MR. BROWN)** The third complete paragraph.

17 **A.** Additional research on ballots produced by ballot marking  
18 devices, BMDs, will be necessary to understand the  
19 effectiveness of such ballots.

20 **Q.** Is it your understanding that additional research is, in  
21 fact, underway?

22 **A.** It is, yes.

23 **Q.** Are the findings conclusive or inconclusive?

24 **A.** They are suggestive.

25 MR. CROSS: Your Honor, could we just have one

1 moment?

2 **(There was a brief pause in the proceedings.)**

3 MS. CHAPPLE: Thank you, Your Honor. No further  
4 questions from us.

5 MR. TYSON: Could I ask one more follow-up?

6 THE COURT: Yes.

7 RE CROSS-EXAMINATION (Further)

8 BY MR. TYSON:

9 **Q.** Dr. Halderman, I'm going to hand you the sheet that  
10 Mr. Brown was having you look at on the computer. Does that  
11 look like the same piece of paper from the same document?

12 **A.** Yes.

13 **Q.** Could you read the recommendation 4.11.

14 **A.** 4.11, elections should be conducted with human readable  
15 paper ballots. These may be marked by hand or by machine using  
16 a ballot marking device. They may be counted by hand or by  
17 machine using an optical scanner. Recounts and audits should  
18 be conducted by human inspection of the human readable portion  
19 of paper ballots. Voting machines that do not provide the  
20 capacity for independent auditing, for example, machines that  
21 do not produce a voter-verifiable paper audit trail, should be  
22 removed from service as soon as possible.

23 MR. TYSON: Thank you. Nothing further, Your Honor.

24 EXAMINATION

25 BY THE COURT:

1 Q. Well, this may seem strange to ask you this. But just  
2 going back to my original order in September of 2018, which is  
3 at Document 309, I went over the -- obviously there were  
4 particular issues about how out of date the DREs were here in  
5 terms of the software and the supporting software and the lack  
6 of patches available and the Windows issues, et cetera.

7 But is there -- and I know the National Science Academy  
8 has also, as well as an array of other organizations -- have  
9 basically been highly critical of DRE systems and in particular  
10 those without any type of voter verification capacity.

11 But what is -- just to sort of just get me the big picture  
12 again, because we still have DREs functional -- though there  
13 is -- the legislation calls for a change.

14 What is the essence of the problem with the DRE -- the  
15 Diebold DRE that are still right now operational?

16 A. The essence of the problem with the DREs is that they are  
17 part of an enormous system that spans the state, from the  
18 Secretary of State's office to the 159 counties to 27,000  
19 devices that are talking back and forth to those counties. And  
20 that because these machines are vulnerable systems with known  
21 vulnerabilities, because they are systems what are called  
22 non-software independent, there is no record that -- there is  
23 no mechanism that would detect a software error or hack that  
24 changed the vote totals. In other words, every vote record is  
25 under the control of the software. Because of those things,



1 one small -- one -- excuse me. I'm not distilling it to  
2 essence very well.

3 Because of the scale and complexity of the system, because  
4 of its vulnerability, and because there is no physical  
5 fail-safe, an attacker who struck at various parts of the  
6 system could introduce an attack that would affect the whole  
7 state and there would be nothing we could reliably hope would  
8 happen to detect it.

9 That is the essence. That there is no means of  
10 detecting -- of recovering from an attack that is spread via  
11 malware through the system. We know that malware can spread  
12 through it because of the known vulnerabilities in the system.

13 And all of this just makes it tremendously fragile and I  
14 think strikes at -- I think it both creates -- it both creates  
15 an extremely high risk and creates abundant reason for doubt  
16 about the accuracy of results.

17 **Q.** What are the other systems that are, if you know,  
18 vulnerable and out of date by the report of the Select  
19 Committee on Intelligence of the United States Senate that just  
20 came out or of the Academy of Sciences that came out a year  
21 ago?

22 **A.** Those -- without having them -- do I have it in front of  
23 me? I have this, but I have not read the entire report. But  
24 the -- what I believe they are referring to, based on my  
25 knowledge of the discussions that -- of the testimony that has

1 led up to this report in the Senate and my reading of the  
2 National Academy's study is -- when they say vulnerable and  
3 out-of-date systems, they are talking about not only Georgia's  
4 DREs but DREs used in other states as well, machines that don't  
5 have a paper trail or don't have a paper trail that can be  
6 reliably audited because of the physical limitations of that  
7 record.

8 **Q.** And do you happen to know -- because it is cited here that  
9 in 2017 -- in here meaning the Senate Committee Report -- that  
10 DEF CON researchers were able to find and exploit  
11 vulnerabilities in five different electronic voting machines?  
12 Do you happen to know what those were?

13 **A.** I don't have the DEF CON report in front of me. But I  
14 was -- I believe I was present at the DEF CON that they were --  
15 that they are talking about. And those machines included other  
16 DREs. They included certain kinds of optical scan machines and  
17 I think an older model of a central count scanner.

18 But that underscores why you need not only the paper trail  
19 in place but also to make sure that it is being audited so that  
20 any error in the scanner or any compromise of the scanner can  
21 be detected by reference to that paper trail.

22 **Q.** While I have you here, just simply so I don't have to  
23 recall you, there has been this use of the word risk-limiting  
24 audits. And you had previously talked about why the parallel  
25 audits didn't work for purposes of the DREs -- the Diebold DREs

1 software.

2 But what would you anticipate is needed -- assuming the  
3 state proceeds in one fashion or another with its current  
4 system, what is needed for purposes of a risk-limiting audit?  
5 What is the best protocol from your perspective?

6 **A.** So risk-limiting audits are very different from parallel  
7 testing, which is what I was referring to.

8 **Q.** Right. I understand that.

9 **A.** They are two very different kinds of defenses. A  
10 risk-limiting audit -- the most important -- the most important  
11 factor of a risk-limiting audit is that in advance of the  
12 election we're going to agree on a level of statistical  
13 confidence that the audit should achieve.

14 Whatever the results are, we want to limit the risk that  
15 fraud will go undetected in the audit to, say, five percent or  
16 ten percent across all the different sets of ballots that could  
17 be examined in the audit. And it is going to be a randomly  
18 selected sample of ballots.

19 And then in a risk-limiting audit, officials will then go  
20 and select at random that fraction of ballots -- a fraction of  
21 ballots that is large enough to meet that risk limit.  
22 Essentially you're taking a big enough sample to reduce the  
23 risk that the sample will miss evidence of fraud below your  
24 predefined risk limit.

25 So in contrast, an audit that is based on just deciding in

1 advance we're going to look at a ten percent sample or a  
2 five percent sample of ballots, that will in a close election  
3 probably be too few ballots to have a high probability of  
4 detecting fraud if it occurred.

5 So the important things are setting a risk limit in  
6 advance, using statistics to figure out how large a sample you  
7 need to get. If you find evidence of fraud, enlarging the  
8 sample until you rule it out or confirm it. Making sure that  
9 the analysis is being done by having people physically examine  
10 the physical ballots that voters saw and not by using a proxy,  
11 like just looking at a digital image from the scanner.

12 **Q.** You are saying afterwards?

13 **A.** This is afterwards. And making sure it is done prior to  
14 certification so that if it determines that there was an error  
15 it is not too late to correct the result.

16 These are some of the most important factors. People have  
17 written guidelines for performing risk-limiting audits as  
18 guides to states that are implementing them, which would be a  
19 more complete description of what is necessary. But that is an  
20 outline.

21 **Q.** I'm not asking you now to be a scholar about the Georgia  
22 law. But the Georgia law does include this provision in  
23 Section 42(e), the Secretary of the State shall conduct a  
24 risk-limiting audit pilot program with a risk limit of not  
25 greater than ten percent in one or more counties by

1 December 31st, 2021.

2 The Secretary of State shall review the results of the  
3 pilot program and within 90 days following the election in  
4 which such pilot program is used shall provide the members of  
5 the General Assembly with a comprehensive report, including a  
6 plan on how to implement risk-limiting audits statewide.

7 If such risk-limiting audit is successful in achieving the  
8 specified confidence level within five business days following  
9 the election for which it was conducted, then all audits  
10 performed to this code section shall be similarly conducted  
11 beginning not later than November 1st, 2024.

12 Just as somebody who specializes in elections and teaches  
13 in this field and apparently has expertise in this issue of  
14 risk auditing, among other issues, from what I looked at your  
15 bio, can you explain to me whether in your view that will give  
16 you an adequate -- the General Assembly an adequate basis for  
17 determining that ten percent in one or more counties -- and  
18 there is some -- it is not -- obviously the Secretary of State  
19 here retains the authority to do more than one county.

20 Does that process give the state potentially enough  
21 information?

22 **A.** Excuse me, Your Honor. The ten percent, was that a risk  
23 limit of not less than?

24 **Q.** It says conduct a risk-limiting audit pilot program with a  
25 risk limit of not greater than ten percent in one or more

1 counties and then --

2 **A.** I see. So --

3 **Q.** I'm just trying to understand what that means from your  
4 perspective, which may not be accurate. But just at least as  
5 somebody who has -- I'm not sure I understand it, and I'm going  
6 to ask the state's folks too. But I don't want to have to drag  
7 you back up here.

8 **A.** So I have read that, and I'm familiar with risk-limiting  
9 audit pilot programs that other states are conducting,  
10 including in Michigan where I'm co-chairing a commission for  
11 the Secretary of State to improve the state's cybersecurity  
12 posture for elections.

13 And in Michigan -- in Michigan, they are conducting county  
14 scale pilots too this year and with some hope of implementing a  
15 statewide audit in time for -- as soon as November 2020.

16 The Georgia text that -- the law you read about a pilot  
17 program in Georgia, it sounds like there were two things that I  
18 see that are concerning about that. One, that it is only  
19 contemplating a pilot and not a statewide risk-limiting audit  
20 unless that pilot is successful.

21 **Q.** I haven't read you everything about risk-limiting audits  
22 either. So I'm sorry. But I'm just trying to understand what  
23 that means.

24 **A.** And the timeline for implementation is a great cause for  
25 concern. Because if you are not doing a risk-limiting audit,

1 then -- then you are not making use of that paper trail -- that  
2 voter-verified paper trail. You are not guaranteed to be  
3 making use of the voter-verified paper trail.

4 So in a close election or one that is just close enough  
5 not to trigger a recount if there is also an automatic recount  
6 provision, which I don't recall whether there is in the Georgia  
7 Election Code, then you may end up as the statistics work out  
8 having a very low confidence in whatever audit you do.

9 So my main concern is: If Georgia is going to have audits  
10 by risk-limiting audits eventually but perhaps not until 2024,  
11 then what is our basis for confidence in elections in the  
12 meantime?

13 THE COURT: Well, there are some provisions for  
14 earlier, but it is just not clear in this provision. This was  
15 probably not fair to throw you in the middle of.

16 But -- all right. Thank you very much.

17 THE WITNESS: Thank you, Your Honor.

18 THE COURT: Anything else?

19 RE CROSS-EXAMINATION (Further)

20 BY MR. TYSON:

21 **Q.** Could I just ask one thing, Dr. Halderman.

22 **A.** Yes.

23 **Q.** Dr. Halderman, do you know how many states currently  
24 conduct statewide risk-limiting audits?

25 **A.** I believe the number today -- and the states keep adding

1 statewide risk-limiting audit provisions. But I believe the  
2 states that require one now are Colorado, Virginia, and Rhode  
3 Island. And Arizona conducts one that is arguably  
4 risk-limiting.

5 **Q.** So that is four states?

6 **A.** Yes. With others where the legislation is in some form of  
7 progress. Yes.

8 REEXAMINATION

9 BY THE COURT:

10 **Q.** So I'm just trying to understand. For instance, we had  
11 somebody here who was the -- had been the commissioner of  
12 one -- part of a bipartisan commission that you heard testify  
13 in New York. And she indicated -- and maybe it wasn't a  
14 risk-limiting audit. But they are targeted -- a certain number  
15 of counties in any election are targeted for audit in a  
16 heightened way.

17 Is that something different?

18 **A.** Yes. Usually that is going to be different from a  
19 risk-limiting audit.

20 In a risk-limiting audit, the key thing to think about is  
21 you are going to start with this notion of how much confidence  
22 do you want to have in the result. And then how much work you  
23 need to do is going to depend on how close the election result  
24 actually was.

25 Because if you don't do that -- just thinking to give you



1 an -- to give the Court an intuition, if the election is a  
2 landslide, you only need to look at a very small number of  
3 ballots or counties or any unit to confirm that it probably was  
4 a landslide.

5 But if it was a tie, well, you need to look at everything  
6 to confirm that it really was a tie. And a risk-limiting audit  
7 is going to use actual statistical formulae to figure out where  
8 on that scale you need to be.

9 **Q.** Just so I can understand from your perspective, what does  
10 it mean when it says -- I mean, this is going to be in one or  
11 more counties according to the legislation. It says with a  
12 risk limit of not greater than ten percent.

13 And what do we mean when we say with a risk limit of not  
14 greater than ten percent?

15 **A.** The risk limit refers to your confidence in having  
16 detected fraud. And ten percent is a very common risk limit to  
17 use.

18 THE COURT: All right. Thank you.

19 MS. CHAPPLE: Your Honor, I do have one clarification  
20 question for Dr. Halderman.

21 REDIRECT EXAMINATION (Further)

22 BY MS. CHAPPLE:

23 **Q.** The Court asked you about risk-limiting audits. You're  
24 not suggesting that a RLA would be adequate to address the  
25 vulnerabilities identified with the Georgia elections system

1 currently in use, are you?

2 **A.** No. Because you can't do a risk-limiting audit with the  
3 system currently in use because there is no physical record, no  
4 paper, no hand-marked ballot to examine.

5 MS. CHAPPLE: Thank you.

6 MR. BROWN: Your Honor, I have one question about  
7 risk-limiting audits.

8 REDIRECT EXAMINATION (Further)

9 BY MR. BROWN:

10 **Q.** Dr. Halderman, do you have confidence that the sample of  
11 votes or ballots that you would obtain from a ballot marking  
12 device are sufficient to conduct a risk-limiting audit?

13 **A.** Well, that is an excellent question. And there are  
14 several reasons why a ballot marking device might record a vote  
15 that doesn't match the voter's intent.

16 For this purpose, the most important is just that the --  
17 if the ballot marking device is hacked -- let's say that you  
18 put -- you type -- you pick one candidate on the screen. It  
19 prints a ballot that reflects the name of another candidate.

20 Well, how many voters are going to notice the discrepancy  
21 is actually an open question in the research literature. There  
22 is science from this past year suggesting that that number is  
23 likely only a very small fraction of voters will notice the  
24 error.

25 So in a close election if only a small fraction of voters

1 notice an error of that form, then a hack of the ballot marking  
2 devices could be sufficient to change the outcome of the close  
3 election.

4 MR. BROWN: Thank you, sir.

5 MS. CHAPPLE: No further questions, Your Honor.

6 MR. TYSON: No more, Your Honor.

7 THE COURT: All right. Is Dr. Halderman excused?

8 MS. CHAPPLE: Yes, please.

9 THE COURT: Thank you.

10 MR. CROSS: Your Honor, two quick things before our  
11 last witness. We have a copy of the transcript of the  
12 Dr. Shamos video that we can give the Court.

13 THE COURT: Thank you. You are going to use that  
14 now?

15 MR. CROSS: No. The other thing I want to do before  
16 our case closes is offer one final exhibit.

17 THE COURT: So you are offering the testimony so that  
18 we have it as part of the record?

19 MR. CROSS: Yes. For the Dr. Shamos stuff, we wanted  
20 to give --

21 THE COURT: Go ahead and offer it.

22 All right. Are there any objections to it? We'll  
23 get the number later.

24 MR. RUSSO: Not with Dr. Shamos.

25 MR. CROSS: Then the last thing, Your Honor, is we

1 had one exhibit we wanted to put in, which is an email exchange  
2 with opposing counsel that we would mark as Exhibit --  
3 Exhibit 12 -- Exhibit 13.

4 THE COURT: Have they seen it?

5 MR. CROSS: Could I approach, Your Honor?

6 Well, it is their email exchange. It just concerns  
7 the risk assessments. And it just clarifies a factual point  
8 about what has been remedied and what hasn't. So we just  
9 wanted to provide that to the Court so the Court had that  
10 information.

11 MR. TYSON: Your Honor, this isn't evidence, first of  
12 all. But, again, the -- Your Honor, this, first of all, is not  
13 evidence we're offering with the witness. But this is an  
14 exchange between Mr. Cross and me and others regarding how we  
15 were going to handle the Fortalice assessments.

16 And the request was -- our request was just to leave  
17 them protected and confidential. Mr. Cross had requested  
18 redactions.

19 Given the timeline we were on Wednesday at 7:30 P.M.  
20 getting ready for this hearing on Thursday morning, we were not  
21 able to determine for the 2018 report which vulnerabilities  
22 have already been remediated because there has not been a  
23 subsequent Fortalice report nor were we in a way to go through  
24 it with Mr. Beaver.

25 So in an abundance of caution, we redacted all of the

1 2018 vulnerabilities. And I know -- I'm certain Mr. Cross is  
2 going to say that proves that none of them have been  
3 remediated. That is not the situation. The issue is we didn't  
4 have time.

5 MR. CROSS: The only reason why we're offering it,  
6 Your Honor -- and we can take a stipulation as well -- is that  
7 we were trying to find out which of the vulnerabilities have  
8 been remediated. They said they were only going to redact  
9 those that have not been remediated. They have widespread  
10 redactions.

11 So the statement from Mr. Tyson was -- and it is  
12 evidence because they represent the state -- for the 2018  
13 report we have not determined whether each of the identified  
14 vulnerabilities have been remediated. So we have left those  
15 vulnerabilities redacted.

16 So our only point is that is the evidence that we  
17 have of the current state of affairs with 2018. And they go on  
18 to say the redactions in the 2017 report are for unremediated  
19 vulnerabilities and the testing work around those.

20 So the representation by the state is their best  
21 evidence was Your Honor can compare the redacted versions to  
22 the unredacted and figure out what has been remediated or not  
23 for 2017. And for 2018 they just don't know. They had an  
24 opportunity to put evidence up with Mr. Beaver, Ms. Payton --

25 THE COURT: Well, their case hasn't even been put on.

1 MR. CROSS: I understand. But they are not calling  
2 those witnesses, Your Honor.

3 THE COURT: Well, I don't know who they are calling.  
4 And I will -- I will reserve ruling on this. You have offered  
5 it so that it is not like you have deferred doing that. And I  
6 haven't seen this either.

7 MR. CROSS: Can I hand this up to Your Honor?

8 THE COURT: You can hand it up, and I'll look at it  
9 later.

10 MR. CROSS: Thank you, Your Honor.

11 MR. TYSON: What exhibit number is it?

12 MR. CROSS: 13. Again, as to the admissibility, it  
13 is non-hearsay. It is from the state, and they have  
14 authenticated it. So there is no basis to keep it out.

15 MR. BROWN: Your Honor, the Coalition would call Matt  
16 Bernhard.

17 COURTROOM DEPUTY CLERK: Please raise your right  
18 hand.

19 **(Witness sworn)**

20 COURTROOM DEPUTY CLERK: Please have a seat. Loudly  
21 and clearly state your full name, and spell your last name for  
22 the record please.

23 THE WITNESS: Matthew Bernhard, B-E-R-N-H-A-R-D.

24 Whereupon,

25 MATTHEW BERNHARD,

1 after having been first duly sworn, testified as follows:

2 DIRECT EXAMINATION

3 BY MR. BROWN:

4 **Q.** Mr. Bernhard, have you submitted declarations in this  
5 case?

6 **A.** Yes.

7 **Q.** And have you submitted declarations that include your  
8 qualifications and your CV?

9 **A.** Yes.

10 **Q.** Have you been qualified as an expert witness before?

11 **A.** Yes.

12 **Q.** The Court in its 2018 order in this case --

13 MR. MILLER: Your Honor, I just want to clarify here  
14 just so we are not waiving any challenge to the expert's  
15 admission as an expert. Was that question meaning to go beyond  
16 that? Or -- I don't want to waive our objection. Because if  
17 it was, then I want to go ahead and put it on the record.

18 MR. BROWN: We are tendering him as an expert.

19 MR. MILLER: I was just making sure the question was  
20 not inferring that he was as an expert now. If that is the  
21 case, that is perfectly fine. I apologize.

22 THE COURT: You are offering -- I don't remember all  
23 of the qualifications -- I'm sorry -- of Mr. -- what should I  
24 look at as his -- you are not -- you don't agree he is an  
25 expert or not?

1 MR. MILLER: That is right, Your Honor. We plan to  
2 challenge his qualifications subject to voir dire wherever that  
3 fits in. I just wanted to make sure we didn't move beyond that  
4 before we had that opportunity.

5 THE COURT: All right.

6 MR. BROWN: I was just trying to speed it up, Your  
7 Honor. But I will now slow it down.

8 THE COURT: Where -- just tell me where his resume is  
9 again or if you have it with you or if you can point me to it  
10 in the record.

11 MR. BROWN: It is in 258-1, which was our 2018 motion  
12 for preliminary injunction. And I'll --

13 THE COURT: I'm not saying you have to use up the  
14 time. We can refer to it.

15 Is there anything materially changed?

16 **Q. (BY MR. BROWN)** What are you doing now, Mr. Bernhard?

17 **A.** I'm still a graduate student at the University of  
18 Michigan. I think since I submitted that resume I have  
19 published a couple of more papers. I have also started  
20 assisting the State of Michigan in rolling out risk-limiting  
21 audits.

22 THE COURT: You also what?

23 THE WITNESS: Started assisting the State of Michigan  
24 in rolling out risk-limiting audits statewide.

25 **Q. (BY MR. BROWN)** Does your study include studying security



1 of election systems?

2 **A.** Yes.

3 **Q.** And have you published papers on that subject?

4 **A.** Yes.

5 **Q.** And those papers have been peer reviewed; correct?

6 **A.** Yes. All of them have.

7 **Q.** And in what case were you qualified as an expert?

8 **A.** I was qualified in -- I don't remember the case name. It  
9 was the lieutenant governor's undervote race in the State of  
10 Georgia.

11 **Q.** The Martin case?

12 **A.** Yes.

13 **Q.** Okay.

14 THE COURT: Why don't you proceed. Somebody should  
15 give me the actual page number because 258-1 is a 369-page  
16 document.

17 Go ahead.

18 **Q. (BY MR. BROWN)** Mr. Bernhard, the Court in its 2018 order  
19 denying our motion for preliminary injunction says the  
20 following, the defendants presented no witness with actual  
21 computer science, engineering, and forensic expertise at the  
22 preliminary injunction hearing to address the impact -- the  
23 impact of the Kennesaw State University breach.

24 You have sat here through this entire hearing; correct?

25 **A.** Yes.

1 Q. And you are also familiar with the pleadings that have  
2 been filed; correct?

3 A. Yes.

4 Q. Have the defendants presented any witness with actual  
5 computer science expertise to address the impact of the KSU  
6 breach?

7 A. Not that I have seen.

8 MR. MILLER: Your Honor, at this point we're moving  
9 beyond the voir dire stage. If you would like me to handle  
10 that later, that's perfectly fine.

11 THE COURT: You can handle it later. Thank you.

12 MR. BROWN: Your Honor, may I approach the bench?

13 THE COURT: Yes.

14 MR. BROWN: I have a printout of his first  
15 declaration.

16 THE COURT: All right. Thank you. Just for the  
17 record, it is 258-1. It says Page 33 though I think -- of that  
18 filing. Thank you.

19 MR. MILLER: Your Honor, I apologize. One last  
20 thing. Can we clarify where or what subject matter he is being  
21 offered as an expert on?

22 THE COURT: Yes. I think that is fair.

23 MR. BROWN: Your Honor, we would tender Mr. Bernhard  
24 on the subject on election security, on the security of systems  
25 like the GEMS database and the DRE machines, and on the

1 functionality and the security of e-pollbooks and all of those  
2 topics.

3 THE COURT: Do you have a supplement to his resume?  
4 I know you said you wrote some more papers, and I realize what  
5 you have worked on. But I do think you can say what the other  
6 papers have been.

7 THE WITNESS: Sure.

8 THE COURT: Are they peer-reviewed papers?

9 THE WITNESS: Yes, they are all peer-reviewed. We  
10 have a workshop paper about a new risk-limiting audit method.  
11 We just got a paper accepted about an optical scanner hack, as  
12 well as some other papers that are unrelated to elections.

13 **Q. (BY MR. BROWN)** You've written papers -- I'm not  
14 suggesting that you're not also esteemed. But you have written  
15 papers with some very well-known other scientists?

16 **A.** Yes, sir. I have been very fortunate.

17 **Q.** And, for example, Public Evidence from Secret Ballots, do  
18 you see that?

19 **A.** Uh-huh (affirmative).

20 **Q.** One of your co-authors is Dr. Halderman; is that correct?

21 **A.** Correct.

22 **Q.** And Dr. Rivest, he is from MIT; is that right?

23 **A.** That is correct.

24 **Q.** And is he also on the National Academy of Sciences  
25 Protecting Democracy Committee?

1 **A.** Yes, as was Josh Benaloh who he was also an author on that  
2 paper.

3 **Q.** And that's B-E-N-A-L-O-H?

4 **A.** Correct.

5 THE COURT: So identify the topics. Because if he is  
6 going to go beyond that and we're going to spend time on this,  
7 I think, in fact, it might -- I want to be sure we're not  
8 wasting our time.

9 MR. BROWN: My questions are very limited. The main  
10 question was the one I just gave. And that was about whether  
11 there had been any testimony about the impact of the KSU  
12 breach. And he testified there wasn't any.

13 And my only next question, since Dr. Halderman has  
14 covered a lot of this, has to do with audits. And then I'll  
15 have one question on the new system and the operating system  
16 for the new system. That is it.

17 THE COURT: All right. You can go on the audits  
18 because he's working on audits right now -- risk-limiting  
19 audits.

20 **Q.** **(BY MR. BROWN)** The Coalition plaintiffs and I believe the  
21 Curling plaintiffs have asked for auditing of hand-marked paper  
22 ballots without necessarily specifying risk-limiting audits.

23 From your perspective and your work in the field,  
24 risk-limiting audits would be the best practice; fair to say?

25 **A.** Yes. That's correct.

1 THE COURT: Don't lead.

2 **Q.** (BY MR. BROWN) But would robust non-risk-limiting audits  
3 also provide security if you have hand-marked paper ballots and  
4 optical scanners?

5 **A.** They would provide security. Depending on the election  
6 results, that level of security will vary. So if you have a --  
7 if you have what is called a fixed percentage audit, which is  
8 what a lot of U.S. states do and what I believe the first  
9 portion of House Bill 316 -- the first -- the 2020 audit  
10 requirement entails -- I need to double-check -- you basically  
11 randomly select, say, five percent of precincts and hand count  
12 them.

13 If you are in a really close race, that will not get you  
14 to a level of confidence in your election just because you  
15 counted these precincts over here but maybe the wrong ballot  
16 was in that one over there. Whereas, a risk-limiting audit  
17 would address that.

18 But in the vast majority of cases, a five percent random  
19 audit or a three percent random audit is more than sufficient  
20 to mitigate the risk at a high level.

21 **Q.** And many times a random audit to give you a higher level  
22 of confidence is inefficient?

23 **A.** Correct. Yes. If your elections -- if the margins are  
24 fairly wide, which they tend to be in most elections, there  
25 is -- you know, a risk-limiting audit could cap the risk

1 counting only, you know, one percent or half a percent of  
2 ballots. Whereas, a fixed percentage audit, you are always  
3 going to be counting the same number of precincts regardless of  
4 the outcome.

5 **Q.** But in your view even with the GEMS system -- GEMS EMS  
6 system, hand-marked paper ballots with the AccuVote scanner,  
7 and a robust risk-limiting audit would address the security  
8 issues that are caused by, for example, the three contractors  
9 building GEMS in their garages; right?

10 **A.** It would certainly mitigate the issues. You are still  
11 going to have problems where, you know, if some other facet of  
12 the system, for instance, the voter registration data, is  
13 compromised, a risk-limiting audit can't really address that.

14 But regarding, you know, malware on voting machines or  
15 mistaken programming of race IDs or whatever, a risk-limiting  
16 audit even with the GEMS system that Georgia currently uses,  
17 provided there are hand-marked paper ballots, would address  
18 those concerns.

19 **Q.** And then, Mr. Bernhard, have you seen news reports on what  
20 type of operating system the systems from which the State of  
21 Georgia will choose from are operating?

22 **A.** Yes. I believe two of the systems run Windows 7, I think,  
23 embedded. Then one of them runs Windows 10, I believe.

24 **Q.** And now does Microsoft still support Windows 7?

25 **A.** They do, but they are phasing it out.

1 MR. MILLER: Leading. And this is beyond the scope  
2 of his declaration. Plaintiffs established yesterday that we  
3 weren't going to go beyond the declarations for experts.

4 Additionally, all I thought they were talking about  
5 here is risk-limiting audits and a handful of other things.  
6 You know, just -- if we're only keeping it to declarations,  
7 just --

8 MR. BROWN: I'll withdraw the question, Your Honor.

9 THE COURT: All right. Thank you.

10 MR. BROWN: Thank you, Mr. Bernhard.

11 THE COURT: All right.

12 EXAMINATION

13 BY MR. CROSS:

14 Q. Just briefly, Mr. Bernhard. We heard testimony today from  
15 Mr. Barnes that when he plugs his thumb drive into his  
16 public-facing computer with the GEMS databases and other  
17 information on it he reformats it.

18 Just for clarification, in your experience and based on  
19 your understanding of the computer science behind this, would  
20 that be sufficient to ensure that the thumb drive itself could  
21 not become infected by malware or other compromise?

22 MR. MILLER: Objection, Your Honor. I'm just going  
23 to rehash the issue in terms of the areas of expertise that  
24 we're talking about here. I'm not sure that we've confined  
25 that and cybersecurity generally as opposed to the

1 risk-limiting audits. I'm just trying to make sure we're clear  
2 on what his expertise is.

3 MR. CROSS: This is just a basic computer science  
4 question, Your Honor. It is about as basic as we can get in  
5 terms of --

6 MR. MILLER: I think --

7 MR. CROSS: -- files moving from one device to  
8 another. It doesn't --

9 MR. MILLER: And it is based on technical knowledge;  
10 correct?

11 MR. CROSS: He is a graduate student that is advising  
12 the State of Michigan. He has graduate level studies on  
13 computer science.

14 THE WITNESS: And if I may, I have also published a  
15 paper about malware.

16 THE COURT: All right. I think that we had every  
17 opportunity to hear about this from Dr. Halderman. So I'm not  
18 sure why we would pile on at this point.

19 MR. CROSS: It is just one question, Your Honor.  
20 That is --

21 THE COURT: Ask your one question.

22 MR. CROSS: That's it.

23 THE COURT: Then go ahead.

24 **A.** No. Simply reformatting a USB drive may not be enough.  
25 Especially if the malware in question is sophisticated, it can



1 either attack the firmware of the USB drive itself, which means  
2 that, you know, you can't -- reformatting it doesn't actually  
3 affect that piece of it.

4 Or the malware can just lie to the system that it is  
5 reformatting it. You know, the computer says, hey, reformat  
6 yourself. The USB stick says, sure, did it. But it didn't  
7 actually do it.

8 **Q.** So switching gears, just one final point for a few  
9 questions. Were you here for the testimony of Ms. Payton and  
10 Mr. Beaver where they walked through the Fortalice assessments  
11 and the dozens of significant risks that were identified there?

12 **A.** Yes.

13 **Q.** Did you hear testimony about how on two different  
14 occasions, including November of 2018, Fortalice was able to  
15 penetrate the system and get administrative domain access?

16 **A.** Yes.

17 **Q.** Were you here for testimony about how the state relies on  
18 three individuals who work out of their homes on home computers  
19 to build ballots and GEMS databases?

20 MR. MILLER: Your Honor, I'm going to object again.  
21 We are summarizing testimony here and leading the witness into  
22 a yes or no question. Then, finally, I just assume this is  
23 leading to an opinion-based question as to what he thinks about  
24 all those things. If that's not the case, then --

25 MR. CROSS: How about I get to ask my questions on

1 foundation and we get there?

2 THE COURT: Ask the question. But I have been very  
3 flexible with y'all.

4 MR. CROSS: It is very brief.

5 THE COURT: What is the question?

6 MR. CROSS: These are foundation to make sure he has  
7 the facts. It was simply: Did he hear the testimony that the  
8 state relies on three individuals who work out of their homes?

9 THE COURT: He said yes already, I think.

10 MR. CROSS: He did.

11 **Q. (BY MR. CROSS)** Okay. We just talked about the USB  
12 formatting. So that is already there.

13 Here is the question. Sorry. One more foundational  
14 question and then the last.

15 THE COURT: Just tell me what the questions is.

16 MR. CROSS: Here is the question that I want to get  
17 to.

18 **Q. (BY MR. CROSS)** Based on everything that you have heard  
19 about the way the state currently operates its system and  
20 vulnerabilities that have been discussed, are you offering an  
21 opinion in this case that it would be reliable for the state to  
22 proceed under its current system using GEMS and DREs? Is that  
23 an opinion you are offering?

24 **A.** Using only GEMS and DREs?

25 **Q.** Well, using the current components --

1           THE COURT: I really feel like this is piling on. I  
2 mean, I'm sure he does have an opinion. But I mean, the fact  
3 is that Dr. Halderman has offered testimony about this. He  
4 has -- and if you didn't bring it out during his testimony, I  
5 can't imagine why we -- I mean, this is all with due respect.  
6 It seems like Mr. Bernhard has a very promising career in front  
7 of him and is deep into it.

8           But why wouldn't you have used Dr. Halderman for this  
9 purpose?

10          MR. CROSS: We have. Dr. Halderman is adamant on  
11 this.

12          THE COURT: Well --

13          MR. CROSS: But this is a different expert for  
14 different parties. I'm just trying to confirm that.

15          THE COURT: No. For purposes of -- I'm giving you  
16 extra time but not for this purpose.

17          MR. CROSS: Your Honor, could I explain why it  
18 matters. Part of what the Coalition plaintiffs have done is to  
19 suggest that there are -- it goes to the relief that the  
20 Coalition plaintiffs are asking for. And so I'm just trying to  
21 understand Mr. Bernhard's position on that as their expert.

22                 If he's not offering that opinion, which I don't  
23 think he is, then I just want to get that in the record. That  
24 is all. Because I haven't heard it.

25          THE COURT: I don't know what -- I really don't know

1 what the distinction is. And you are going to have to then  
2 refine this more. You can then -- than what you have. I don't  
3 understand that that is getting us to it.

4 It is 3:25. I haven't heard from the defendants'  
5 witnesses. If this becomes a problem later on, I'll let you  
6 figure out how to get it in. But I would rather really at this  
7 point like -- let the defendants do what they are going to do  
8 and put on their case. It is not fair even if I have to run  
9 over to Monday and do something, but we have got to move on.  
10 Thank you.

11 MR. CROSS: Thank you.

12 MR. MILLER: Your Honor, it will be a very brief  
13 cross-examination since he has already submitted a declaration.

14 THE COURT: All right.

15 CROSS-EXAMINATION

16 BY MR. MILLER:

17 **Q.** Good afternoon, Mr. Bernhard.

18 **A.** Good afternoon.

19 **Q.** My name is Carey Miller. I represent the state defendants  
20 in this case. I'm just going to ask you a few questions here.  
21 And I assure you I'll be brief. As Your Honor mentioned, we're  
22 going late.

23 Just to go back to your qualifications, you are a Ph.D.  
24 candidate at Michigan; correct?

25 **A.** Correct.

1 Q. Under Dr. Halderman?

2 A. That's correct.

3 Q. And have you had any other jobs?

4 A. I've worked at Microsoft Research and Cloudflare.

5 Q. As an intern; right?

6 A. Yes.

7 Q. Have you -- and you mentioned earlier that you were  
8 previously admitted as an expert witness; correct?

9 A. That is correct.

10 Q. And that was in the case Coalition vs. Crittenden?

11 A. I believe.

12 Q. Mr. Brown was the plaintiffs' attorney there?

13 A. Yes.

14 Q. Would you mind -- excuse me. Do you recall testifying  
15 under oath in that case?

16 A. I do, yes.

17 Q. Do you recall testifying under oath before Judge Grubbs  
18 that you were a qualified expert witness in the Curling vs.  
19 Kemp case in the Northern District?

20 A. I don't recall saying that.

21 MR. MILLER: Your Honor, if I may, I'm pulling out  
22 what is already in the record at Doc. 449-11. This is the  
23 transcript from the Coalition vs. Crittenden case.

24 Given that it is in the record, I assume we do not  
25 need to mark it as an exhibit. But we can.

1 THE COURT: All right.

2 **Q. (BY MR. MILLER)** Mr. Bernhard, would you mind reading the  
3 title of the first page here.

4 THE COURT: What page?

5 MR. MILLER: Just the very front page.

6 **A.** The Coalition for Good Governance, et al., vs. Robyn A.  
7 Crittenden, et al.

8 **Q.** Superior Court of Fulton County; correct?

9 **A.** Yes.

10 MR. MILLER: And, Your Honor, just to be clear, this  
11 is a section of the transcript. Again, because the whole  
12 transcript is in the record, we didn't print the entire thing.

13 THE COURT: That is fine.

14 **Q. (BY MR. MILLER)** I had to make it easier on Mr. Bernhard  
15 so he doesn't get a paper cut.

16 Could you turn to Page 143, please. Are you with me?

17 **A.** Yes.

18 **Q.** Do you see on Line 12 -- could you read that question.

19 **A.** Yes. Have you ever been qualified as an expert in a case?

20 **Q.** And do you see Lines 14 through 16 below?

21 **A.** Yes.

22 **Q.** Could you read that answer.

23 **A.** Sure. Yes, sir. I'm an expert -- qualified expert  
24 witness in the Curling vs. Kemp case in the Northern District  
25 of Georgia.

1 Q. That is not correct, is it?

2 A. I was mistaken.

3 Q. Do you remember testifying in the same case that you had  
4 never worked on a political campaign?

5 A. Yes.

6 Q. Would you mind turning -- but you had also previously  
7 worked on the Jill Stein recount campaign; correct?

8 A. Yes. I did not perceive that as a political campaign.

9 Q. Even though it reports to the FEC?

10 A. It wasn't an election. She wasn't running for office.

11 Q. Were you paid for that work?

12 A. Yes.

13 Q. How much?

14 A. I believe it was \$200 an hour.

15 Q. Are you aware the amount of money Ms. Stein raised for  
16 these recounts?

17 A. Yes.

18 Q. 7 million sound about right to you?

19 A. I think it was closer to 10 if I recall.

20 Q. With all that money and effort, you never found anything  
21 to confirm your hacking speculation; correct?

22 A. In fact, we found limited evidence to the contrary.

23 That's correct.

24 Q. In fact, you found some additional hand-marked paper  
25 ballot votes in Wisconsin; correct?

1     **A.**     That is -- well, we didn't find them.  But the State of  
2     Wisconsin found them.

3     **Q.**     As a result of your recount?

4     **A.**     Yes.

5             MR. MILLER:  Okay.  Your Honor, a few brief questions  
6     regarding risk-limiting audits, and then I will sit down.

7     **Q.**     **(BY MR. MILLER)**  First, you heard Dr. Halderman's  
8     testimony earlier; correct?

9     **A.**     Yes.

10    **Q.**     That four states have introduced risk-limiting audits?

11    **A.**     Yes.

12    **Q.**     And that Georgia will then be the fifth?

13    **A.**     I must have missed that.

14    **Q.**     Assuming somebody -- I'm asking you to logically deduce  
15    there.

16             THE COURT:  I thought the question to  
17    Dr. Halderman -- I may have missed it -- was statewide ones.  
18    And I'm not sure that the state is doing a statewide audit  
19    provision in the statute.  I'm trying to understand what it  
20    provides.

21             MR. MILLER:  Well, I'm not trying to mischaracterize  
22    Dr. Halderman's testimony.

23             THE COURT:  No.  I meant the question to him.

24             MR. MILLER:  Right.  I think the aspect was related  
25    to House Bill 316 and the matters that are in there to



1 eventually go statewide in at least some counties and to use  
2 that aspect.

3 Now I will move on. But I did not want to  
4 mischaracterize there.

5 **Q. (BY MR. MILLER)** One last portion. You mentioned the  
6 operating system in ballot marking devices; correct?

7 **A.** Yes.

8 **Q.** And you suggested that Windows 7 support will end soon?

9 **A.** Yes.

10 **Q.** Would it end in 2023?

11 **A.** My understanding is that Microsoft has scheduled Windows 7  
12 for phasing out starting January of 2020.

13 **Q.** And support will continue through 2023 for Microsoft?

14 **A.** That might be possible. I know that they have done phased  
15 retirements in the past.

16 **Q.** So you don't know?

17 **A.** I don't know.

18 **Q.** But you're also an expert in election cyber equipment;  
19 right?

20 **A.** Yes.

21 **Q.** Are you aware that Windows 10 is being prepared for many  
22 of those ballot marking devices?

23 **A.** Yes.

24 **Q.** You are aware that that has to go through federal EAC  
25 certification before it can be installed?

1     **A.**    Yes.

2     **Q.**    And that takes some time, does it not?

3     **A.**    It does.

4     **Q.**    So for now, with support through 2023, operating systems  
5    of BMDs are, frankly, not at issue; is that correct?

6     **A.**    To some degree, yes.  The issue -- right? -- is that if  
7    they -- even with support, if they patch the systems, they  
8    still have to be recertified under the current standards --  
9    under the current certification regime.

10            MR. MILLER:  Thank you.  Your Honor, I'm just going  
11    to renew my objection to Mr. Bernhard's admission as an expert  
12    witness.  The only case he has been qualified in before he  
13    actually was incorrect or testified incorrectly under oath  
14    about his admission in this case.

15            Based on his training and experience, I don't believe  
16    he qualifies as an expert.  And further, Your Honor, though we  
17    didn't get into it, the methodology in his report is somewhat  
18    lacking.  He is citing mostly Dr. Halderman's reports.

19            And, frankly, the reason why I'm doing such a limited  
20    cross-examination is that the vast majority of this was covered  
21    by Dr. Halderman as well.

22            THE COURT:  All right.  Thank you.

23            Is there anything, Mr. Brown, you wanted to say in  
24    response?

25            MR. BROWN:  Just -- you had questions?

1 MS. BURWELL: Yes.

2 CROSS-EXAMINATION

3 BY MS. BURWELL:

4 **Q.** Good afternoon, Mr. Bernhard. Your declaration shows that  
5 you do some work with Verified Voting; correct?

6 THE COURT: I want to make sure we're referencing all  
7 the same declaration. We're talking about 258-1?

8 MS. BURWELL: Yes.

9 THE COURT: All right. Go ahead.

10 **Q.** **(BY MS. BURWELL)** You work with Verified Voting?

11 **A.** That's correct.

12 **Q.** And that is an organization that was incorporated for the  
13 purpose of invalidating the electronic voting machines, such as  
14 the kind that are used in Georgia; correct?

15 **A.** That is one way of putting it, I suppose.

16 **Q.** Okay. And let me ask you about your testimony that you've  
17 provided either in your declaration or today.

18 Did you coordinate with any of the other expert witnesses  
19 that have testified for the plaintiffs?

20 **A.** No.

21 **Q.** Now, Dr. Halderman is your adviser; correct?

22 **A.** That's correct.

23 **Q.** And he is also on the advisory board of Verified Voting;  
24 correct?

25 **A.** I think so.

1 Q. Did you have any discussions with him at all about your  
2 testimony?

3 A. No.

4 Q. Did you have any discussions with him about his testimony?

5 A. No.

6 Q. Did you review his declaration?

7 A. I did, yes.

8 Q. Did you review the declarations of the other experts that  
9 have testified?

10 A. Not all of them. But some of them.

11 Q. Let me ask you now a couple of things from your  
12 declaration. And you don't have a copy -- do you have a copy  
13 of it, 258-1?

14 A. No.

15 Q. Excuse me. Let me give you this copy.

16 THE COURT: Let me ask you so we are not doing  
17 anything redundant. I know that the witness gave some  
18 testimony relating to what he observed in Fulton County. But  
19 are we just going -- this is sort of what I was getting at with  
20 Mr. Cross.

21 Are we just going to pile on what Mr. Miller already  
22 did in terms of qualification issues? And how much time are we  
23 going to spend on it? I'm just concerned about getting to the  
24 defendants' case because I can take all of that under -- so  
25 just --

1 MS. BURWELL: I wasn't going to ask him about his  
2 qualifications. I was going to only ask him about a few items.

3 THE COURT: Fine. Go for it.

4 **Q. (BY MS. BURWELL)** The first one I wanted to ask you about  
5 was Paragraph 31 where you were talking about the seals that  
6 are in use.

7 **A.** Uh-huh (affirmative).

8 **Q.** Now, your declaration doesn't say that you received any  
9 information from any county or state regarding the seals that  
10 are purchased for use with the machines; correct?

11 **A.** No. But I have observed them firsthand.

12 **Q.** So you saw seals; correct?

13 **A.** Yes.

14 **Q.** Okay. So when you say, we observed that the seals used  
15 can be purchased on Amazon, who is the we?

16 **A.** Myself, Ms. Marks, and Logan Lamb.

17 **Q.** And you are not suggesting, are you, that counties or the  
18 state purchased seals from Amazon, are you?

19 **A.** No.

20 **Q.** So what you are saying is that what you saw you then went  
21 on Amazon and saw something that you thought was similar, and  
22 so that is what you are reflecting in Paragraph 31; correct?

23 **A.** Yes. I'm trying to show what an attacker could reasonably  
24 achieve. If they wanted to try to break the seals that Fulton  
25 County used or Georgia uses, they could practice by buying them

1 on Amazon -- by buying similar seals on Amazon.

2 **Q.** Now, you don't say that you personally have purchased any  
3 of these seals; correct?

4 **A.** I have. But I don't say that.

5 **Q.** Okay. But -- so you have purchased some. You just didn't  
6 say that you purchased some; correct?

7 **A.** Yes.

8 **Q.** Now, the seals that you purchased, were they preprinted  
9 or --

10 **A.** I acquired several. Some of them are just -- they don't  
11 have any embossing on them at all. Some of them, yes, they do  
12 have serial numbers on them.

13 **Q.** And you don't say in your declaration that you have done  
14 anything to sort of etch a serial number?

15 **A.** No.

16 **Q.** Have you tried to etch a serial number on --

17 **A.** Not on the plastic seals, no.

18 **Q.** But you say here that it would be simple for someone to  
19 etch a serial number on a seal; correct?

20 **A.** Yes.

21 **Q.** But you haven't tried that yourself?

22 **A.** No. But I have seen people do it.

23 **Q.** Now, you have here starting I guess at Paragraph 34 some  
24 information regarding times that you visited the Fulton County  
25 Election Preparation Center; correct?

1 **A.** Yes.

2 **Q.** And that was in 2017 and 2018?

3 **A.** That's correct.

4 **Q.** And that was for the purposes of testifying; correct?

5 **A.** I suppose.

6 **Q.** So the reason you visited was at that point in time for  
7 the sole purpose of testifying?

8 **A.** It was to better understand the physical security of  
9 Georgia's election systems. I didn't at the time have a mind  
10 that I was going to be testifying about it at least the first  
11 time. The second time, yes.

12 **Q.** But you're not from Georgia; correct?

13 **A.** No, not originally.

14 **Q.** So you are saying that -- you're from Michigan; right?

15 **A.** I live in Michigan. I'm not from there.

16 **Q.** Well, but you are not from Georgia?

17 **A.** I have lived in Georgia. But I am not --

18 **Q.** Were you a registered voter in the State of Georgia in  
19 2017?

20 **A.** No, ma'am.

21 **Q.** Were you a registered voter in the State of Georgia in  
22 2018?

23 **A.** No, ma'am. I have never been a registered voter in the  
24 State of Georgia.

25 **Q.** So is it then a coincidence that this lawsuit was filed in

1 2017 and in 2017 you visited the Fulton County Election  
2 Preparation Center?

3 **A.** No, I suppose not.

4 **Q.** You visited for purposes of testifying?

5 **A.** I suppose, yes. If that is the rubric, yes.

6 **Q.** Now, the complaints you have about what you saw in Fulton  
7 County relates to the fact that poll workers weren't doing what  
8 you thought they ought to be doing; correct?

9 **A.** It is a little more than just that.

10 **Q.** Well, what you say is you saw poll workers stack voting  
11 machines, sealed them, left the gym, which left yourself and  
12 your colleagues; right?

13 **A.** Yes.

14 **Q.** But you didn't touch the machines; right?

15 **A.** No, of course not.

16 **Q.** You and your colleagues didn't touch the machines?

17 **A.** No.

18 **Q.** And you didn't see anybody touch the machines?

19 **A.** No, ma'am.

20 **Q.** So what you're complaining about there is that the poll  
21 workers had left the machines; correct?

22 **A.** Yes. What I'm complaining about there is that poll  
23 workers left them. And if I had decided to, I could have  
24 broken the seals on the machines and opened them.

25 **Q.** But you didn't?



1     **A.**    No, of course not.

2     **Q.**    And you didn't see anybody do that?

3     **A.**    No, ma'am.

4     **Q.**    And then in Paragraph 35, you talk about going through the  
5    Preparation Center, and you say on several occasions.  How many  
6    occasions?

7     **A.**    I think I have been there at least three times.

8     **Q.**    Was one of those in connection with attempting to do some  
9    sort of review of machinery?

10    **A.**    Yes, ma'am.

11    **Q.**    So that was in 2018?

12    **A.**    I think I have actually been there twice for -- so last --  
13    earlier this year as well for forensic review.

14    **Q.**    So when you went to the Preparation Center, did you sign  
15    in when you went?

16    **A.**    Two of the times, no, I was not asked to.

17    **Q.**    And were you there doing logic and accuracy testing?

18    **A.**    No, ma'am.

19    **Q.**    So none of those occasions were for logic and accuracy  
20    testing?

21    **A.**    I observed logic and accuracy testing on at least one of  
22    those occasions.  But I was not there to do it myself.

23    **Q.**    I'm sorry.  I didn't suggest that you were doing it.  But  
24    you were there to view it?

25    **A.**    Yes.  Correct.

1 Q. Okay. So one of the -- at least one of the times you are  
2 saying you were there to view logic and accuracy testing?

3 A. Yes, ma'am.

4 Q. And that occurs before an election; correct?

5 A. Yes.

6 Q. And the other times you went, were those before or after  
7 an election?

8 A. One time we went, I think it was, on election night. So  
9 we saw them processing all of the absentee ballots. The other  
10 times were, you know, in between -- in between elections. So I  
11 was in January after the midterm election there to look at  
12 discovery for the state -- the lieutenant governor's case, for  
13 example.

14 Q. So, again, you were there for purposes of testifying in a  
15 case?

16 A. Yes, ma'am.

17 Q. Now, some of the things that you saw there that you didn't  
18 agree with had to do with the way that poll workers had secured  
19 certain things; correct?

20 A. Yes, ma'am.

21 Q. And the way they secure certain things would be the same,  
22 whether we were talking about an electronic system or paper  
23 ballots; correct?

24 A. I'm not quite sure what you are getting at.

25 Q. So there is going to be a process for security; correct?

1 **A.** Yes.

2 **Q.** And the poll workers are supposed to follow; right?

3 **A.** Yes.

4 **Q.** There are going to be processes whether you are talking  
5 about an electronic machine, and there are going to be  
6 processes -- security processes if you are talking about paper  
7 ballots; correct?

8 **A.** Yes. But it is not clear to me that those -- those  
9 processes doesn't necessarily map on to each other. Right.

10 **Q.** Right. I didn't suggest that they did. I was asking you  
11 about whether or not there would be processes for security for  
12 both.

13 **A.** Yes, ma'am.

14 **Q.** Okay. And so if -- if a poll worker doesn't follow, let's  
15 say, security procedures for paper ballots, it is possible that  
16 paper ballots could be stolen; correct?

17 **A.** Correct. A small batch of paper ballots could be stolen,  
18 yes.

19 **Q.** And if they don't follow the security procedures -- then  
20 if they have procedures, say, for securing paper ballots by  
21 locks, if they don't follow those, there could be a problem;  
22 correct?

23 **A.** Correct. Just like with DREs.

24 **Q.** And if they had seals that could be compromised, that  
25 would be the same whether we're talking about paper ballots or

1 a machine; right?

2 **A.** Yes. But as Dr. Halderman mentioned, the scope of risk is  
3 radically different in those two scenarios.

4 **Q.** I wasn't asking you about the scope of risk. I was asking  
5 you about whether or not there was a risk.

6 **A.** I understand.

7 **Q.** And you agree with me that there is a risk?

8 **A.** Yes.

9 **Q.** Correct? That is because people are imperfect; right?

10 **A.** Uh-huh (affirmative).

11 **Q.** Whenever you have to rely on people, there is a  
12 possibility that the process in place won't be followed?

13 **A.** Correct.

14 **Q.** Correct?

15 **A.** Yes.

16 **Q.** That is with machines?

17 **A.** Yes, ma'am.

18 **Q.** As well as with paper ballots?

19 **A.** Right.

20 MS. BURWELL: That is it, Your Honor.

21 THE COURT: I'll rule later on the objections to his  
22 serving as an expert. Let's take a five-minute break.

23 COURTROOM SECURITY OFFICER: All rise. Court is now  
24 in recess.

25 **(A brief break was taken at 3:44 P.M.)**

1           THE COURT: As I said, I'm going to rule later about  
2 Mr. Bernhard. I do want to just simply state though on the  
3 record right now so that there is not a suggestion that he --  
4 that Mr. Bernhard was falsely testifying. He may have  
5 misunderstood his status. And he is young, I recognize.

6           But in my order of September 17, 2018, at Document  
7 309, I found that Page 6 other cybersecurity elections experts  
8 have shared in Professor Halderman's observations of the data  
9 manipulation and detection concealment capacity of such malware  
10 or viruses, as well as the ability to access the voting system  
11 via a variety of entry points. Plaintiffs filed affidavits in  
12 the record for several of these experts. And then I cited in  
13 the footnote Dr. DeMillo's affidavit and one from Dr. Buell,  
14 Stark, Bernhard.

15           And I think this is simply perhaps a lack of  
16 sophistication about the legal process about being qualified as  
17 an expert rather than being referred to by the Court as an  
18 expert that may have occurred here, and I'm sure that he won't  
19 make that same mistake again.

20           MR. BROWN: Your Honor, I'm sure you noticed, but I  
21 asked the question have you been qualified as an expert.

22           THE COURT: Right. I understood that. So counsel  
23 erred probably as well.

24           But because it goes to the integrity of the witness,  
25 I didn't want him to be bearing that as a badge of dishonor

1 that he was making a misrepresentation to the Court on any type  
2 of intentional basis.

3 MR. MILLER: Your Honor, and just to be clear, while  
4 the impeachment thing is a separate matter, it was the reality  
5 of how many cases had he been qualified in and that kind of  
6 thing.

7 THE COURT: I understand. That was the other issue.  
8 And that I will consider and consider his affidavit again. But  
9 in the interest of time, I'm just going to proceed.

10 Is the witness excused at this time?

11 MR. BROWN: Yes, Your Honor.

12 THE COURT: All right. There was another exhibit you  
13 wanted to get in, and I said I'll look at it later. It was 13;  
14 is that right, Mr. Cross?

15 It was the letter from the defense counsel, and I  
16 haven't looked at that either. But I'm just trying to move  
17 forward.

18 MR. CROSS: Yes.

19 THE COURT: You have already made argument about it,  
20 and I'll look at it later.

21 MR. CROSS: Yeah, Your Honor. It is not a big deal.  
22 It just gives the status of the state on those particular  
23 vulnerabilities. That is a big deal.

24 THE COURT: Well, except that in this context I  
25 thought that they were saying we just can't respond to you in

1 time. And you had that as well really, frankly, about the --  
2 in a different context I can't get back to you about Dr. --  
3 what portions of Dr. Shamos' testimony we're going to use.  
4 We're flying.

5 MR. CROSS: Understood, Your Honor. To be clear, I'm  
6 not attributing any fault or anything. This is a substantive  
7 matter, which is there has been some confusion including  
8 between Mr. Beaver and Ms. Payton as to what vulnerabilities  
9 were remediated and where they stand.

10 I'm only offering this as a substantive position of  
11 the state that this is their most recent information. So if  
12 you look at the redactions and compare them, that would give  
13 Your Honor some sense of where they stand. Again, this is not  
14 a criticism of the state. It is just the best evidence we  
15 have.

16 THE COURT: I understand that. I just don't know  
17 that -- my problem is I can't read it with a degree of clarity  
18 that I would like to at the moment. I understood both of your  
19 positions, and I'm saying let's move on. I'll look at it  
20 again.

21 MR. CROSS: Yes. I agree. I agree.

22 THE COURT: All right. I'm trying to get to their  
23 case and try to avoid having to go over to Monday. You are  
24 lucky there was a constitutional challenge to the criminal  
25 charges in the case on Monday that got raised also at the last

1 moment. So I had to defer that case. But that is not a reason  
2 for us to have to go over. So just to clarify my own  
3 schedule --

4 MR. CROSS: Your Honor, one final thing before the  
5 Curling plaintiffs rest, Dr. Halderman did want to correct one  
6 thing in his testimony. He was asked about other states, and I  
7 don't remember the exact context.

8 MS. CHAPPLE: It was -- sorry. For the risk-limiting  
9 audits statewide, he said that Arizona was one of them and he  
10 meant to say New Mexico.

11 MR. CROSS: With that, we rest, Your Honor.

12 MS. CHAPPLE: Thank you, Your Honor.

13 THE COURT: Just so I understand, is this statewide  
14 audits or is it -- I mean, the one I was reading about was  
15 an -- in the statute was a county for potential larger use --

16 MR. TYSON: Yes, Your Honor.

17 THE COURT: -- as I understood that provision.

18 MR. TYSON: Yes, Your Honor. The way the statute  
19 works is there are county audits that have to happen as soon as  
20 possible but no later than November 2020. Risk-limiting audits  
21 would go into effect after a pilot program looking towards a  
22 statewide structure.

23 My question to Dr. Halderman was just how many other  
24 states have adopted a statewide risk-limiting audit. That was  
25 the only clarity there.



1 MS. CHAPPLE: And the clarification was that New  
2 Mexico is statewide rather than Arizona.

3 THE COURT: I got it. I understand.

4 And Mr. Brown?

5 MR. BROWN: We rest.

6 THE COURT: All right. Mr. Russo or Mr. Tyson?

7 MR. TYSON: Your Honor, I think we were going to have  
8 Fulton County proceed next with their case, and then we would  
9 follow.

10 THE COURT: Okay. Is Chatham County's representative  
11 still here?

12 MR. RUSSO: Yes, ma'am.

13 THE COURT: Because I did want to talk with him.

14 MR. RUSSO: He is here.

15 THE COURT: Go ahead.

16 MS. RINGER: Your Honor, Fulton County calls Richard  
17 Barron.

18 COURTROOM DEPUTY CLERK: Please raise your right  
19 hand.

20 **(Witness sworn)**

21 COURTROOM DEPUTY CLERK: Please have a seat. Loudly  
22 and clearly state your full name, and please spell your last  
23 name for the record.

24 THE WITNESS: Richard Barron,  
25 R-I-C-H-A-R-D B-A-R-R-O-N.

1 THE COURT: Is there water still left in there?

2 THE WITNESS: No, there is not.

3 THE COURT: We'll get you some water. If you'll give  
4 me -- thank you so much.

5 Whereupon,

6 RICHARD BARRON,

7 after having been first duly sworn, testified as follows:

8 DIRECT EXAMINATION

9 BY MS. RINGER:

10 **Q.** Good afternoon, Mr. Barron. We've heard a lot about the  
11 counties using modems.

12 Could you tell us whether or not Fulton County currently  
13 uses a modem as part of its voter tabulation.

14 **A.** We disconnected using it before the 2018 general election.

15 **Q.** So tell us what you do now with respect to vote tabulation  
16 at the end of election day.

17 **A.** We collect all of the memory cards at the check-in  
18 centers, and then we have those driven in to the main Election  
19 Preparation Center, and then we tabulate them there.

20 **Q.** How are they driven in?

21 **A.** We have the poll workers come in -- well, they are  
22 escorted by the police, either marshals, Fulton County police,  
23 or sheriff.

24 **Q.** I want to talk some about the impact of the proposed paper  
25 ballot solution in this case. If the Court were to order that

1 paper ballots be used, what would be the financial impact for  
2 Fulton County?

3 **A.** Well, that is unclear at this point. It depends on  
4 whether the Court orders it for September and November, and we  
5 also have to determine how many paper ballots we're going to  
6 need, how extensive we are going to use early voting, if we're  
7 going to keep the same number of early voting sites.

8 **Q.** Let's take that piece by piece. What's your budget for  
9 2019?

10 **A.** It is a little over \$2 million.

11 **Q.** Is that \$2 million left for the year, or did you have  
12 \$2 million for the entire year?

13 **A.** That is our operational budget. In odd-numbered years, we  
14 have an operational budget. We don't have an election budget.  
15 When we run municipal elections, the municipal -- the  
16 municipalities pay for those elections. So we get -- we  
17 collect money from municipalities or Atlanta Public Schools.  
18 And we conduct those elections from that -- those monies.

19 **Q.** So of your 2 million-dollar budget for 2019, you have  
20 about a million dollars left in the operating budget; is that  
21 correct?

22 **A.** That is probably close to it. Yes.

23 **Q.** Would there be any additional monies that would be  
24 allocated to your office in any way?

25 **A.** Currently, no.

1 Q. So if you needed additional monies in order to implement a  
2 paper ballot solution, where would you get those funds from?

3 A. We would have to do a soundings request in front of the  
4 board of commissioners. So we would have to write a  
5 resolution. And then submit that to be put on the agenda for  
6 board of commissioners at their next meeting.

7 Q. If you submit a soundings request, is it guaranteed that  
8 it would be granted?

9 A. No, not necessarily because the county has a  
10 constitutional mandate to keep their budget balanced. So they  
11 have to take money from other departments in order to come up  
12 with that money unless there -- I think sometimes the county  
13 has some money that is set aside. It is usually, I think,  
14 somewhere around a million dollars that they set aside that  
15 they can use. But I'm unaware of how much of that has been  
16 drawn down over the year.

17 Q. How many registered voters do you have in Fulton County?

18 A. As of Monday, it was a little over 811,000.

19 Q. What percentage of Fulton County voters currently vote via  
20 absentee ballot?

21 A. I think in the 2016 presidential we had approximately  
22 six percent, seven percent, somewhere in there. For a  
23 municipal election, it is a tiny percentage.

24 Q. Could you tell the Court what would be some of the things  
25 that you would have to procure in order to do a paper ballot

1 election.

2 **A.** Well, one of the first things we would have to do is find  
3 a source for optical scan units that are compatible with the  
4 GEMS -- with our GEMS server.

5 Last year at this time or in September of last year when  
6 we were in court, we had contacted ES&S. I think they said  
7 they could probably get 75 for the whole State of Georgia. We  
8 would need -- we currently have 41 operational units. 36 -- 5  
9 are on litigation hold. So we have access to 36.

10 Usually during logic and accuracy testing, some of those  
11 fail. So we end up having to get those repaired. So we would  
12 need to have at least 130 for the September election. For the  
13 November election, it is going to be quite a bit more.

14 **Q.** Let me stop you just a minute. When you say you would  
15 need 130 for the September election, what is the September  
16 election you are referring to?

17 **A.** That is for Board of Commissioners District 6 and for the  
18 Atlanta Public Schools District 2.

19 **Q.** What is the date of that election?

20 **A.** That is September 17 with a runoff date of October 15th.

21 **Q.** Where are you in your preparations for the election?

22 **A.** Well, we've started online training with poll workers, and  
23 we are preparing to begin early voting -- the training for  
24 early voting. We have selected the sites that we are going to  
25 take to the Board of Registration & Elections to have them

1 approve that at their next meeting.

2 We are beginning to recruit poll workers. We just brought  
3 all of our temporary staff on board on Wednesday of this week.  
4 So we are starting to ramp up all of the preparations for the  
5 election.

6 **Q.** When does early voting start for September 17?

7 **A.** August 26. A month from today.

8 **Q.** That is true.

9 THE COURT: This is for the school board election  
10 or --

11 THE WITNESS: That's for Commissioner District 6 and  
12 APS District 2.

13 **Q.** (BY MS. RINGER) APS being?

14 **A.** Atlanta Public Schools.

15 **Q.** Thank you. So you were telling us about the need for  
16 printers. You have determined that you need how many printers  
17 to run the September election if we were to do it via paper  
18 ballot?

19 **A.** We need to purchase 94, assuming that all of them make it  
20 through logic and accuracy.

21 **Q.** Okay. And where would you purchase 94 optical scanners  
22 from?

23 **A.** I have no idea.

24 THE COURT: I'm sorry. How many precincts?

25 THE WITNESS: I think we're going to have 58 polling

1 places for that -- that election.

2 **Q.** (BY MS. RINGER) Okay. So can you explain to the Court --

3 MS. RINGER: Thank you, Your Honor.

4 **Q.** (BY MS. RINGER) -- if we have 58 precincts how that comes  
5 down to the number of scanners you are saying you need?

6 **A.** We'll need scanners for early voting. And considering the  
7 reliability, we'll have to -- for each early voting site, if we  
8 do use 10, we would need 20 for early voting and probably a  
9 couple of extras.

10 And then for election day, we're going to need 58. And  
11 then we would need probably a second one in each precinct to  
12 make sure that we have an extra there during the day. It  
13 depends on what we're going to do though with early voting. I  
14 anticipate that we would probably have to reduce our early  
15 voting footprint.

16 **Q.** Okay. We'll get to that in just one second. Tell us  
17 again --

18 **A.** We're actually -- for September's election, we're going to  
19 do three early voting sites. November's is going to be ten.

20 **Q.** Okay. So let's talk about September for right now. So  
21 you say that you are not able to purchase enough scanners?

22 **A.** Well, a year ago, ES -- from what I was told, ES&S had 75  
23 that they could distribute around.

24 MR. BROWN: Object, Your Honor. From what I was  
25 told, that is hearsay.

1           THE COURT: All right. Try to keep to what you --  
2 what you know at this juncture based on your own investigation.  
3 And I mean -- I don't really care that it is actually hearsay  
4 if you tell me who you right now -- what your efforts have been  
5 to determine that.

6           THE WITNESS: Now I'm unsure where we would -- where  
7 we would get them now or how many are available.

8       **Q. (BY MS. RINGER)** Would you be able to just go out and  
9 purchase optical scanners from any vendor?

10      **A.** The only vendor we can purchase from would be to get them  
11 through ES&S because those are compatible with GEMS. So we  
12 would have to get those -- the AccuVote-OS scanners.

13      **Q.** And if you were able to find scanners somewhere somehow,  
14 if ES&S was able to produce them, would they have to be  
15 certified by the state before you could use them?

16      **A.** Once we received them, they would -- they would have to  
17 certify them. They would probably be shipped to our warehouse.  
18 And then they would come and do acceptance testing on them.

19           But there would be a -- there is a procurement process.  
20 And we would have to get monies approved from the board of  
21 commissioners and then find these. So it would probably take,  
22 I would imagine, weeks before we would determine did we have  
23 the money and where we could get them.

24      **Q.** You stated that you would have optical scanners in each  
25 precinct. So it is your preference to have them in the



1 precinct and not as a centralized scanner?

2 **A.** The optical scan units that we have are meant to be in the  
3 precinct. We use them now for central count when it comes to  
4 absentee by mail. We use them -- for example, in a  
5 presidential election, we only had 26, I think, available. And  
6 we had to count almost 30,000 ballots. And it took us from the  
7 morning of election day until, I think, 5:30 P.M. on Wednesday  
8 around the clock to count all of those because you have to feed  
9 them in one at a time.

10 **Q.** You heard the testimony of, I believe, Ms. McReynolds  
11 yesterday. She spoke about high speed scanners that they use  
12 in Denver.

13 Do you have the ability to buy high speed scanners?

14 **A.** There are none available that are compatible with the  
15 firmware that we have in the State of Georgia.

16 **Q.** Do you have any other observations about how easy the  
17 transition would be similar to what was experienced in Denver?

18 **A.** Well, I think the main difference -- Denver was using  
19 paper in the precincts alongside -- from the way it sounds, the  
20 voter had the choice of whether they wanted to vote on a DRE or  
21 by paper. And they were also -- they had -- 33 percent of  
22 their voters were voting absentee.

23 And so if you are already using paper in the precinct to  
24 the extent that they were as well, it is much easier to  
25 transition. Because you already have the procedures in place

1 and you have already trained the poll workers on those  
2 procedures to deal with paper as well as DREs.

3 We haven't -- I believe Fulton County last used paper  
4 ballots in 1964. The only paper procedures that we have are  
5 for provisional ballots, which that is a completely different  
6 procedure than checking in a voter. And so we would just  
7 have -- we would have to train the poll workers on how to deal  
8 with paper ballots.

9 **Q.** Now, let's talk a little bit about the --

10 THE COURT: They don't work at all with them for  
11 absentee ballots?

12 THE WITNESS: Our poll workers, no.

13 THE COURT: Your office staff does?

14 THE WITNESS: Our office staff does, yes.

15 MS. RINGER: Your Honor, were you finished?

16 THE COURT: Yes.

17 **Q. (BY MS. RINGER)** You started to tell us about elections in  
18 November. Do you have concerns about having a paper ballot  
19 election in November?

20 **A.** Well, if we're running -- if we run a DRE election, for  
21 example, in September and we have the runoff in October, which  
22 we will have a runoff because there are nine candidates in each  
23 of those races, we will start -- we would have to start early  
24 voting on October 15 for the November election.

25 And if the Court ordered a paper election, we would have

1 paper early voting starting on October 15th. And October 15th  
2 is also election day for the September -- September election  
3 runoff.

4 So therefore we would be running two different types of  
5 elections on the same day. And we would have poll workers that  
6 would be overlapped that we would have to then train -- we  
7 would have to train those workers -- while they are already  
8 working either through early voting or on election day, we  
9 would have to then retrain them on a new -- on a new system.  
10 And that would get complicated.

11 **Q.** We've heard that Fulton County dropped out of the pilot  
12 program for the ballot marking devices. Can you tell us more  
13 about that? Is that accurate?

14 **A.** Yes. The City of Atlanta was going to jump on to the  
15 November election. They were going to have a MOST election,  
16 which is a municipal option sales tax election. They  
17 ultimately decided against it.

18 But at the time when it was up in the air and there was  
19 going to be several weeks before they were going to make their  
20 decision, I called Chris Harvey at the state and told him that  
21 if the City of Atlanta is going to be on the election,  
22 especially considering the amount of equipment that we were  
23 going to be -- that we were going to receive in the  
24 distribution as part of the pilot, we weren't going to get  
25 enough equipment to run an election with the City of Atlanta on

1 there.

2 Before that, we were going to have ten municipalities.  
3 And we were -- for that -- for that election, we were going to  
4 have to either make a choice of doing all early voting with the  
5 new equipment and then the -- and then run election day with  
6 the old equipment, or we were going to have to isolate it to  
7 cities.

8 And so it was going to be difficult for Fulton County  
9 unless we could get equipment for all -- for the entire  
10 election, for election day and early voting, to be a part of  
11 the pilot.

12 So I talked to Chris Harvey and told him that we just  
13 weren't going to be able to be a part of it.

14 **Q.** I want you to clarify a little bit. So we have heard that  
15 the county and the state already uses paper ballots for  
16 provisional and for absentee voting. And so it would be a  
17 simple just to switch over to paper ballots.

18 Do you believe that to be accurate?

19 **A.** Well, my office staff processes all of the absentee  
20 ballots. So they have been doing it -- they have been doing it  
21 for years. The poll workers are unfamiliar with paper. And  
22 I'm unsure what type of measures would be put in place.

23 For example, in Texas, they would -- when you -- when you  
24 hand out paper to a voter, you put down three upside down.  
25 You'll give them a choice of three ballots, and then they pick

1 one of those so that you are not handing them a ballot. You  
2 are actually giving them a choice to pick from three ballots of  
3 that ballot style.

4 So I'm not -- I don't know what the state would mandate as  
5 part of their processes with regard to how we're supposed to  
6 execute a paper ballot election. So there would just be a lot  
7 of -- I mean, I have done paper ballot elections. So it is  
8 just -- there are a lot of procedures that are different. And  
9 I think that especially early voting would be somewhat  
10 problematic at this point.

11 **Q.** Do you have any concerns about whether or not paper  
12 ballots will be able to be ordered for your September  
13 election -- ordered in time? I'm sorry.

14 **A.** For the September election, well, I mean, I think if we  
15 ordered them right away, we probably could get them.

16 MS. RINGER: I just have one more thing. Just one  
17 second.

18 **(There was a brief pause in the proceedings.)**

19 **Q. (BY MS. RINGER)** Are there any other materials that you  
20 would need to obtain or procure in order to do a paper ballot  
21 election outside of paper ballots and scanners that we've  
22 talked about?

23 **A.** Yeah. We would need to get -- you would have to get  
24 ballot boxes -- emergency ballot boxes. We would also -- we  
25 would need the ballot boxes that the OS scanners are going to

1 go on. We would need to have an emergency ballot box in the  
2 precinct, as well, unless there is a slot for that with the OS  
3 ballot box.

4 THE COURT: I'm sorry. OS refers to?

5 THE WITNESS: The optical scan. They slide on  
6 usually to a rolling ballot box. If those already have an  
7 emergency ballot box -- but we always used to have also the  
8 metal -- an emergency metal ballot box in the precinct.

9 **Q. (BY MS. RINGER)** Let me stop you. What would the  
10 emergency ballot box be used for?

11 **A.** Well, if for some reason we have to run out because of a  
12 fire or if the poll workers need to exit the building because  
13 of a fire, they can at least still -- I mean, you would expect  
14 that if the building is on fire they can set up a polling place  
15 out in the parking lot or wherever it is somewhere. And they  
16 aren't going to be able to use that any more. So they are  
17 going to have to get the ballots out, transfer them to that  
18 box, and then seal it and get out.

19 **Q.** Are there any other materials you would need?

20 **A.** Yes. For early voting, we would need cabinets because you  
21 are going to need big cabinets with lots of shelves in them to  
22 file all of the ballot -- paper ballots -- the different ballot  
23 styles. Those cabinets would have to be purchased.

24 You would have to get a vendor. The county's -- I'm not  
25 sure how the county's procurement process is going to -- would

1 be to get those. Usually it takes a couple of months to  
2 purchase anything through the county's procurement process.

3 So -- but we would definitely need those for early voting  
4 if we're going to keep the same level of early voting in  
5 November that we would want.

6 **Q.** Would you also need to procure anything regarding curtains  
7 or security?

8 **A.** We would need booths. We would have to get lots of voting  
9 booths. You can set those up so that they have privacy windows  
10 in between. And you can set those up on tables. We would  
11 probably have to procure a lot of tables to deliver out to all  
12 the polling places.

13 THE COURT: Can you explain that to me? Right now  
14 you have voting booths?

15 THE WITNESS: No. We have voting booths for the  
16 DREs.

17 THE COURT: Right. You can't use those voting  
18 booths?

19 THE WITNESS: No. Those are part of the whole DRE  
20 mechanism. It is all one piece.

21 THE COURT: How many voters are you thinking are  
22 going to -- are likely anticipated in the District 6 race?

23 THE WITNESS: There are nine candidates. You know,  
24 it could be anywhere from probably 10 to 20 percent.

25 THE COURT: That's in the original one but not in the

1 runoff?

2 THE WITNESS: Yeah. The runoff depending on who is  
3 in it could end up -- sometimes in those races the runoff  
4 turnout ends up being a little bit higher because you are down  
5 to two candidates. Sometimes when there's nine candidates,  
6 people -- they don't know who to pick.

7 THE COURT: But when you say 20 percent -- I still  
8 don't know what that number looks like. What are we talking  
9 about? 2,000? 6,000?

10 THE WITNESS: I think there are somewhere right  
11 between 125- and 130,000 registered voters in District 6. So  
12 we're talking -- and then it is similar -- APS District 2,  
13 between those two, if we have a ten percent turnout, you are  
14 talking about, you know, somewhere between 16 -- 16,000 and  
15 20,000 voters.

16 THE COURT: I was general counsel for the school  
17 board at some point. And I never remember seeing an election  
18 turn out like that. But that is -- but anyway --

19 MS. RINGER: One last question, Mr. Barron.

20 THE WITNESS: Well, most of that turnout would  
21 probably be for Commissioner District 6.

22 THE COURT: Okay. All right.

23 **Q. (BY MS. RINGER)** One last question. When you prepare for  
24 an election, can you prepare as though only 20 percent of the  
25 electorate will come out to vote?



1 **A.** I mean, we're supposed to assume as though -- we have to  
2 prepare as though everyone is going to turn out. I mean -- and  
3 the one thing that would affect that is the number of ballots  
4 that we would -- that we would order ahead of time.

5 **Q.** Would that also impact the number of poll workers you  
6 would need?

7 **A.** It could. But I mean, for municipal elections that have  
8 lower turnout, we do use fewer poll workers usually.

9 MS. RINGER: No further questions.

10 THE COURT: Thank you.

11 MR. RUSSO: We don't have any questions, Your Honor.

12 CROSS-EXAMINATION

13 BY MR. MANOSO:

14 **Q.** Afternoon, Mr. Barron. I just want to circle back on a  
15 few things from your testimony.

16 I'm right that you testified that the City of Atlanta is  
17 not currently holding any elections in November of this year;  
18 is that correct?

19 **A.** Correct.

20 **Q.** And I believe you also testified that ten municipalities  
21 are having elections in November of this year; is that correct?

22 **A.** Yes.

23 **Q.** So that means that less than 800,000 registered voters are  
24 eligible to vote in November of this year; correct?

25 **A.** Correct.

1 Q. You were talking about turnout as well and that it is  
2 lower for these type of elections; is that correct?

3 A. Yes.

4 Q. Are you aware that Alpharetta had 3900 votes for the  
5 municipal elections held in November of 2017? Does that sound  
6 right?

7 A. Sounds right.

8 Q. Earlier you talked about using police escorts to transfer  
9 memory cards in the November 2018 election?

10 A. Uh-huh (affirmative).

11 Q. Do you recall that testimony? There were 25 police  
12 escorts used by the county for November 2018 to escort the  
13 memory cards; is that correct?

14 A. That sounds right.

15 Q. They were split across five collection centers?

16 A. Yes.

17 Q. So that means you had to use 25 police officers to drive  
18 the police car; correct?

19 A. Yes.

20 Q. You had to pay those police officers overtime; is that  
21 right?

22 A. Yes.

23 Q. And each police officer also had a poll worker with them  
24 as well; is that right?

25 A. Yes.

1 Q. And it is true that you implemented this in response to a  
2 request from the state?

3 A. Correct.

4 Q. You actually thought the use of police escorts was  
5 unnecessary; correct?

6 A. To do -- to do that duty? No.

7 Q. Well, let's be clear. You said that it made no difference  
8 in terms of the security that they were using police escorts  
9 instead of the use of modems; is that correct?

10 A. Well, I think what we wanted to do was conform with the  
11 rest of the state.

12 Q. Right. And that is not my question.

13 My question is that you said at the time that I think it  
14 makes no difference. I think there's more risk driving them.  
15 That is what you said; correct?

16 A. There's more risk driving them? Oh, well, in terms of  
17 whether there would be accidents and that sort of thing or, you  
18 know, if you run into traffic or any of that sort of thing or  
19 an accident or if the police have to stop because there is an  
20 emergency somewhere --

21 Q. Again, to be clear, my question is that you said that it  
22 makes no difference in terms of whether they were transferred  
23 by the modems that they had been or the use of police cars.  
24 That is what you said; correct?

25 We can pull it out if you would like.

1 **A.** No. If I said that, then I said that.

2 **Q.** Mr. Barron, there was a runoff election in December of  
3 2018; is that correct?

4 **A.** Uh-huh (affirmative).

5 **Q.** And at least the Life Center Ministries polling station  
6 had to use provisional ballots for a portion of that runoff  
7 election; is that correct?

8 **A.** I don't remember.

9 MR. MANOSO: If I may approach, Your Honor, I will  
10 hand the witness Exhibit 14.

11 **Q.** (BY MR. MANOSO) Are you with me, Mr. Barron?

12 **A.** Yes.

13 **Q.** You see that this is a news article from December 4, 2018?

14 **A.** Uh-huh (affirmative).

15 **Q.** And this is about two Fulton precincts remaining open  
16 later due to early morning issues.

17 **A.** Yes.

18 **Q.** As it says, the Life Center Ministries polling place  
19 stayed open an hour later because a polling manager lost a  
20 stack of voter access cards?

21 **A.** Yes. That is what this says, yes.

22 **Q.** Do you recall that that occurred in the 2018 runoff  
23 election?

24 **A.** Yeah. Vaguely, yes.

25 **Q.** You have no reason to believe that that didn't occur, do

1 you?

2 **A.** No.

3 **Q.** As a result of lost voter access cards, there was no  
4 voting for approximately one hour; is that correct?

5 **A.** Well, they would have started voting provisionally.

6 **Q.** And if those ran out, there would have been no voting;  
7 correct?

8 **A.** Correct.

9 **Q.** I'm glad you mentioned the provisional ballots because it  
10 is true that once the voter access cards were lost provisional  
11 ballots is what were used until those cards could be replaced;  
12 correct?

13 **A.** Yes.

14 **Q.** And as this indicates, your office had to print more  
15 ballots to be used?

16 **A.** Correct.

17 **Q.** Those hand-marked ballots were -- they were collected?  
18 Voters were able to use them; correct?

19 **A.** Yeah. They had to go through the provisional process to  
20 vote. But yes.

21 **Q.** But those hand-marked ballots were counted; correct?

22 **A.** Yes.

23 MS. RINGER: Objection, Your Honor. This is outside  
24 the scope of direct examination.

25 THE COURT: Overruled.

1 **Q.** (BY MR. MANOSO) Your office did what was necessary to  
2 make sure that people could cast their vote; is that fair to  
3 say?

4 **A.** Yes.

5 **Q.** If the Court ordered you to use hand-marked paper ballots  
6 to allow voters to cast their vote in November, you would  
7 follow that order; correct?

8 **A.** Yes.

9 THE COURT: So when people turned in provisional  
10 ballots, was it the poll workers themselves who worked with the  
11 provisional ballots?

12 THE WITNESS: Yes. Yeah. They have to fill out the  
13 envelopes and the provisional paperwork for each voter. So it  
14 does take longer to process them that way.

15 **Q.** (BY MR. MANOSO) Mr. Barron, just quickly, how much does  
16 Fulton County receive to run the ten municipal elections that  
17 they will be running this November?

18 **A.** Well, we are going to -- the budget is currently around  
19 1.1 million.

20 **Q.** Just to make sure I'm straight, that is 1.1 million that  
21 Fulton County receives from the municipalities to run the  
22 elections?

23 **A.** Yes.

24 **Q.** Thank you. Going back to November 2018, do you recall  
25 that you testified in the hearing last year that Fulton County

1 would probably have 400 to 450 ballot styles for November 2018  
2 elections? Do you recall that testimony?

3 **A.** Probably.

4 **Q.** We can pull it up.

5 **A.** I don't recall it. But if you say I did --

6 **Q.** That sounds like what you would have testified that you  
7 were expecting 400 to 450 ballots; correct?

8 **A.** It could be, yes.

9 **Q.** We can make this easy. In fact, Fulton County only used  
10 115 ballot styles in the actual November election; correct?

11 **A.** Okay.

12 **Q.** Did you not testify in January of 2019 under oath that  
13 Fulton County had 115 ballot styles in November 2018 elections?

14 **A.** Did I testify under oath?

15 **Q.** Did you testify in a state court proceeding in  
16 January 2019?

17 **A.** Yes.

18 **Q.** You testified there were only 115 ballot styles used;  
19 correct?

20 **A.** Yes.

21 **Q.** Staying with the November 2018 election, there were  
22 complaints about a shortage of DRE machines available during  
23 the election made to your office; correct?

24 **A.** Uh-huh (affirmative).

25 **Q.** You said that the reason for the availability of few spare

1 machines was because of Judge Totenberg's sequestration order;  
2 is that correct?

3 **A.** Well, I think what I've since learned is that the  
4 litigation hold was -- I think it is the result of the Attorney  
5 General. And so I had 694 machines that I had no access to.  
6 And the only way they could be lifted was either if the  
7 plaintiffs' side agreed to lift it or if there was a judicial  
8 order to lift it.

9 **Q.** Mr. Barron, let's listen to my question. My question was:  
10 At the time of the November 2018 elections, you said that the  
11 reason for the lack of spare machines was because of Judge  
12 Totenberg's sequestration order? That is what you said?

13 **A.** Well, I think that is semantics at this point because I  
14 had 694 machines that were outside of my access.

15 **Q.** You also stated that Fulton County had asked Judge  
16 Totenberg to release those machines but that she refused. Do  
17 you recall that?

18 **A.** That was my understanding at the time.

19 **Q.** Mr. Barron, you still have confidence --

20 THE COURT: That is not your understanding now; is  
21 that right?

22 THE WITNESS: Right.

23 **Q.** (BY MR. MANOSO) Mr. Barron, you still have confidence in  
24 the voting system currently in place?

25 **A.** Yes.



1 Q. In fact, after the hearing last year, you stated that  
2 Georgia voters should still be confident in the voting system  
3 that we have? That is what you said before; right?

4 A. Yes.

5 Q. And that is still your belief today?

6 A. Yes.

7 Q. And you said that warnings about election security do not  
8 reflect real world scenarios? That is what you have said as  
9 well; correct?

10 A. Correct.

11 MR. MANOSO: Nothing further, Your Honor.

12 CROSS-EXAMINATION

13 BY MR. BROWN:

14 Q. Mr. Barron, I'm Bruce Brown. I want to ask you some  
15 questions on the turnout in the anticipated four -- and to  
16 distinguish between the October race and the November race.

17 What is your expected outcome in the race -- the September  
18 race?

19 A. For the September election, it could be anywhere from 10  
20 to 20 percent. I'm not really a prognosticator when it comes  
21 to turnout.

22 Q. And that is against -- what is the base? What do you take  
23 ten percent of? The 800,000 or some subset of that?

24 A. It would be a subset of that because we have got the APS  
25 District 2 and we have got the Commissioner District --

1 Commissioner District 6.

2 **Q.** 6. And I think you estimated --

3 **A.** So I mean, you know, I think optimistically we're going to  
4 see somewhere between -- it could be anywhere from 16- to  
5 20,000 if it is in that ten percent range. It just -- it is  
6 going to depend on how many people that candidates can get out  
7 to vote.

8 **Q.** And then for the runoff, it might be more; is that right?

9 **A.** Once it narrows down to two candidates, you may see a  
10 higher turnout.

11 **Q.** And then do you -- have you made any estimations for the  
12 turnout in the November elections?

13 **A.** No. I think it is going to be less than, for example, in  
14 November of 2017. Because usually the City of Atlanta has a  
15 much higher turnout than other municipalities.

16 **Q.** Do you have a ball park? Well, what was it in November of  
17 2017?

18 **A.** I think the city was close to 30 percent and some of the  
19 other municipalities were probably as low as 6 to 9.

20 **Q.** Could you give me an estimate -- just a ball park estimate  
21 of the number of anticipated voters in November? Not as a  
22 percentage but as a sum.

23 **A.** It is going to vary from city to city. So I would say  
24 somewhere in that probably 5 to 12 percent range.

25 **Q.** So about the same as October or a little bit more or a

1 little bit less?

2 **A.** Your guess is as good as mine.

3 **Q.** Well, how many hand-marked paper ballots did you scan in  
4 the 2018 election?

5 **A.** I haven't looked at that number in a while. But it is  
6 probably somewhere between 18- and 22,000.

7 **Q.** Okay. So all of this activity that you have been  
8 describing in this misery of moving to hand-marked paper  
9 ballots, what you are describing is a move from about 18- to  
10 20,000 ballots being scanned to about 18- to 20,000 ballots  
11 being scanned; fair enough?

12 **A.** Uh-huh (affirmative).

13 **Q.** So it is about the same as what you have been doing;  
14 right?

15 **A.** Yes.

16 **Q.** Okay. And -- but if you are using hand-marked paper  
17 ballots -- well, you are very careful with those -- all those  
18 DRE machines; right? When you set them up, when you tear them  
19 down and test them and everything else; right?

20 **A.** (Witness nods head affirmatively.)

21 **Q.** You need to say yes.

22 **A.** Yes.

23 **Q.** And they all -- do each of them go through logic and  
24 accuracy testing?

25 **A.** No.

1 Q. And how long does logic and accuracy take?

2 A. For a major election, probably four to five weeks.

3 Q. And how many full-time -- how many employees or  
4 contractors do you have doing that?

5 A. Usually there's about 15 people that are working on that.

6 Q. For how long a period of time?

7 A. Several weeks.

8 Q. And if you moved to hand-marked paper ballots, you  
9 wouldn't be spending that money; right?

10 A. We would have to then -- we are going to have to do logic  
11 and accuracy on all the OS machines. So if we were able to  
12 procure 130, say, then we're going to have to do logic and  
13 accuracy testing on all of those units.

14 Q. Well, the 130 was -- the 130 scanners -- 130 scanners for  
15 20,000 ballots?

16 A. Well, we would have to -- that depends on the number of  
17 polling places that we have, and also it depends on the number  
18 of early voting sites.

19 For the November election, we would need far greater than  
20 100 -- 130.

21 Q. Well, that is two per polling place and 20 for early  
22 voting; right? It is about 130.

23 A. Yeah. We have -- for the November election, it is well  
24 over 100 precincts for November. I was speaking about the  
25 September election.

1 Q. Okay. So for the November election, you have well over  
2 100 precincts; right?

3 A. Yes.

4 Q. And those would be well over 100 precincts that you would  
5 have to furnish with DRE machines; correct?

6 A. Yes.

7 Q. And, instead, what you are doing is you're furnishing them  
8 with more scanners; correct?

9 A. Correct.

10 Q. And do each of those precincts have scanners already?

11 A. No.

12 Q. They don't even have one?

13 A. No.

14 Q. But each of them have people who are trained on handling  
15 paper ballots; correct?

16 A. Yes. They process the provisional voters, yes.

17 Q. So the way you --

18 A. It is usually only the poll manager that processes  
19 provisional voters.

20 Q. So the way that you would sort of net out your cost would  
21 be to figure you're scanning about the same number of pages but  
22 since you are going to put that all in the precincts you're  
23 going to have to buy more scanners; right?

24 A. We would have to buy scanners, yes.

25 Q. But if you got into a budgetary fix, you could go to

1 central count; correct?

2 **A.** Yes.

3 **Q.** And in any event, whether central count or precinct count,  
4 you would be saving a lot of the cost of all of those people  
5 that you are hiring to do the logic and accuracy test on the  
6 DRE machines, although not on the scanners; right?

7 **A.** Yes.

8 **Q.** Now, Mr. Barron, let me show you what has been marked as  
9 Plaintiffs' Exhibit 15.

10 MR. BROWN: And for the record, the handwriting on  
11 the second page does not appear on the original. But it does  
12 appear in the copy that I'm handing to you. This also appears  
13 in the record at 258-1, Page 102.

14 **Q.** **(BY MR. BROWN)** You're a county election official;  
15 correct?

16 **A.** Yes.

17 **Q.** Do you recall receiving this from Chris Harvey?

18 **A.** Yeah, I believe so.

19 **Q.** Let me direct your attention to the bottom of the second  
20 page. Do you see the last paragraph there?

21 **A.** Yes.

22 **Q.** And could you just read that into the record.

23 **A.** There is a provision of Georgia law that allows the state  
24 to move to paper ballots in the event that the machines are  
25 inoperable or unsafe. If we ever reach a point where our

1 office feels that these machines cannot be trusted to  
2 accurately deliver election results, we will invoke this  
3 statutory provision. To this day there is no credible evidence  
4 that our election process is anything except secure and  
5 accurate.

6 **Q.** Was it your understanding that the state would make that  
7 decision to move to paper ballots depending upon whether it was  
8 more trouble for you or less trouble for you to do it that way?

9 **A.** No.

10 **Q.** It was simply binary; right? If it is unsafe, you have  
11 got to move to paper ballots; is that right?

12 **A.** Correct.

13 **Q.** And if Mr. Harvey as opposed to a federal court gave you  
14 the order, you would also follow it and move to paper ballots;  
15 correct?

16 **A.** Yeah. If the state told us we had to, then we would do  
17 that.

18 THE COURT: Are you offering this as an exhibit?

19 MR. BROWN: I move that into evidence, Your Honor.

20 Thank you.

21 THE COURT: What is the number?

22 MR. BROWN: It is Defendants' 15.

23 THE COURT: Plaintiffs' 15.

24 MR. BROWN: Plaintiffs' 15. I'm sorry.

25 **Q. (BY MR. BROWN)** Mr. Barron, very quickly, has Fulton

1 County taken any action to assess or remediate the impact the  
2 KSU server exposure to the internet had upon your system?

3 **A.** No.

4 **Q.** Now, you're not a great fan of e-pollbooks, are you?

5 **A.** They -- well, I think in less than countywide elections,  
6 they are -- I had an issue with them.

7 **Q.** And your office -- you've had problems with them; right?

8 **A.** Yeah. We did in one particular election.

9 **Q.** I mean -- what particular election was that?

10 **A.** April 2017.

11 **Q.** And what happened?

12 **A.** We had -- if you have less than a countywide election,  
13 there is -- we had to have three -- we had to use three  
14 databases for that election, one for the city of Johns Creek,  
15 one for a runoff for the City of South Fulton and Roswell, and  
16 then we also had the Congressional District 6 and I think it  
17 was the Senate District 32 election.

18 **Q.** And what happened?

19 **A.** Well, we had -- voters that lived in Johns Creek or that  
20 lived in Roswell because we had to use different databases had  
21 to check in twice.

22 And if you have less than a countywide election, when  
23 you -- when voters go in to vote, if they are ineligible to  
24 vote or if they are in the wrong precinct, what it does is if a  
25 poll worker doesn't call in to the office to verify that then



1 when they hit the precinct detail tab it pulls the information  
2 from the last voter that was there.

3 **Q.** That is a software glitch I take it?

4 **A.** I wouldn't use the word glitch. But it is, I think, the  
5 way the software was designed.

6 **Q.** It was defective by design?

7 **A.** I wasn't privy to the design. So all that I know is what  
8 happens when you have less than a countywide election. And I  
9 think when you have voters that had to check in at two  
10 different places for that -- because we were running three  
11 different elections on different databases, which had never  
12 been done, that it magnified the problem.

13 **Q.** But -- and it happens when there is less than a countywide  
14 election; correct?

15 **A.** Yes.

16 **Q.** Which happens all the time; right?

17 **A.** It does.

18 **Q.** Okay. And it is something that should not happen;  
19 correct? You didn't call it a glitch. But it is a flaw;  
20 correct.

21 **A.** It was something that when they designed it I think -- I  
22 don't think they considered that.

23 **Q.** And they fixed it though; right?

24 **A.** No. It is still there.

25 **Q.** Okay. And do you recall in a meeting, I guess it is, of

1 the -- you go to the board meetings; right?

2 **A.** Yes.

3 **Q.** Because you are the election director; right?

4 **A.** Yes.

5 **Q.** Do you recall in a Fulton County Board of Elections  
6 meeting in April of 2017 saying, because of -- because the  
7 ExpressPolls to me are just the worst thing in the world? Do  
8 you recall saying that?

9 **A.** I may have.

10 **Q.** That would not be inconsistent with your belief at least  
11 at the time; correct?

12 **A.** That was a frustration.

13 **Q.** And have you reported the flaw to the state?

14 **A.** They are aware of it.

15 **Q.** But no fix has been implemented; is that correct?

16 **A.** I'm unsure if it is possible. We just -- we train the  
17 poll workers to call us if it is less than countywide and  
18 somebody shows up that is in the wrong precinct or if they are  
19 ineligible to vote in that election.

20 **Q.** If you had a hard copy of countywide e-pollbooks --  
21 everybody in the county in the e-pollbooks, that would at least  
22 partially ameliorate a problem such as that; correct?

23 **A.** Somebody that is familiar with the programming to that  
24 needs to answer that.

25 **Q.** Okay. Let me hand you what I'm going to mark as

1 Exhibit 16 just very quickly.

2 THE COURT: Were you wrapping up here?

3 MR. BROWN: I am now.

4 **Q. (BY MR. BROWN)** Let me hand you what has been marked as  
5 Exhibit 16. And are these Fulton County's responses to our  
6 interrogatories?

7 **A.** Yeah, it looks that way.

8 MR. BROWN: I move to admit, Your Honor. I just  
9 point out for the record that in those interrogatory responses  
10 the explanation for that glitch is provided in greater detail.

11 THE COURT: Okay.

12 MR. BROWN: Thank you, Your Honor.

13 THE COURT: Are you just referencing this, or are you  
14 introducing this?

15 MR. BROWN: I'm introducing it, and I'm finished with  
16 it.

17 THE COURT: But you are introducing it as an exhibit?

18 MR. BROWN: Yes, I am. I move to admit, Your Honor.

19 THE COURT: What is the number?

20 COURTROOM DEPUTY CLERK: 16.

21 MR. BROWN: 16.

22 THE COURT: Are there any objections?

23 MS. RINGER: No, Your Honor.

24 COURTROOM DEPUTY CLERK: And 14?

25 MR. RUSSO: No objection.

1 THE COURT: No objection from Fulton County?

2 MS. RINGER: No.

3 THE COURT: Were there any objections to the other  
4 one, 15?

5 MS. RINGER: No objection.

6 THE COURT: Any objection?

7 MR. RUSSO: No, ma'am.

8 THE COURT: All right. They are admitted.

9 COURTROOM DEPUTY CLERK: 14 as well.

10 THE COURT: 14? What was 14?

11 MR. MANOSO: That was the AJC article, Your Honor.

12 THE COURT: Do you really need it? It is sort of  
13 like -- I mean, you questioned him about it.

14 MR. MANOSO: It is up to you, Your Honor.

15 THE COURT: Of course, it is up to me. Well, you  
16 know, I didn't allow them to have their article that they  
17 wanted in. I just sort of think it is not necessary.

18 MR. MANOSO: Yes, Your Honor.

19 THE COURT: You have offered it. I don't think it is  
20 necessary because he discussed it in the testimony. So it is  
21 not admitted.

22 All right. May this witness be excused, or do you  
23 have more?

24 MS. RINGER: No further questions, Your Honor.

25 THE COURT: All right. Thank you very much.

1 MR. MILLER: Your Honor, we're going to call Russell  
2 Bridges from Chatham County in the interest of him getting back  
3 to Savannah at a reasonable hour.

4 THE COURT: Is somebody going to get him, or is he  
5 here?

6 MR. MILLER: Yes. He is in the witness room  
7 sequestered.

8 MR. TYSON: While we're waiting, would it be  
9 appropriate for us to check on time?

10 THE COURT: How much time are you going to need? I  
11 mean, you haven't had any witnesses. So I just want to find  
12 out what you --

13 MR. TYSON: We have three witnesses, Your Honor. So  
14 yes. So Mr. Bridges and then Ms. Ledford and then Ms. Doran.

15 MR. RUSSO: And Dr. Shamos.

16 MR. TYSON: And Dr. Shamos' video -- the clips from  
17 the video deposition.

18 THE COURT: All right. And how long do you think  
19 each -- how much -- I can't remember how much you allocated for  
20 each of these individuals.

21 Regardless of what you allocated, what do you think  
22 at this juncture?

23 MR. TYSON: Probably 20 minutes apiece.

24 MR. RUSSO: For our side.

25 MR. TYSON: For our side only. And then I believe

1 the video of Dr. Shamos is right at 20 minutes as well. Maybe  
2 17 minutes.

3 THE COURT: I don't know what we're going to do.  
4 Let's see how we do with this witness. And, you know, I'm  
5 prepared to go to 7:00. But if we had to spin over to Monday,  
6 I would do that too. It really depends on whether we become  
7 dysfunctional here.

8 MR. MILLER: I don't intend to start that trend, Your  
9 Honor.

10 THE COURT: That is so wonderful.

11 COURTROOM DEPUTY CLERK: Please stand and raise your  
12 right hand.

13 **(Witness sworn)**

14 COURTROOM DEPUTY CLERK: Please have a seat. Loudly  
15 and clearly state your full name, and spell your last name for  
16 the record.

17 THE WITNESS: My name is Russell Bridges. My last  
18 name is spelled B-R-I-D-G-E-S.

19 Whereupon,

20 RUSSELL BRIDGES,

21 after having been first duly sworn, testified as follows:

22 DIRECT EXAMINATION

23 BY MR. MILLER:

24 Q. Good afternoon, Mr. Bridges. Thank you for hanging around  
25 a little bit. I know you are anxious to get home. I apologize

1 for that.

2 Mr. Bridges, did you prepare a declaration in this case?

3 **A.** I did.

4 **Q.** And in that declaration, did you speak to your general  
5 background and experience in Chatham County?

6 **A.** Yes, sir, I did.

7 MR. MILLER: May I approach, Your Honor?

8 THE COURT: Yes.

9 MR. MILLER: I'm handing the witness what is already  
10 in the record as Document 472-6, the declaration. I don't  
11 intend to tender it at this point.

12 **Q.** (BY MR. MILLER) Mr. Bridges, could you describe for the  
13 Court your background and the current position you hold.

14 **A.** I'm currently the supervisor of elections for Chatham  
15 County. I have been with the county now for 15 years.

16 **Q.** And where did you grow up?

17 **A.** I am actually a Savannah native. I haven't grown up yet  
18 though.

19 **Q.** And what do your responsibilities entail as the elections  
20 supervisor?

21 **A.** Well, as the supervisor, I'm charged with -- first, I  
22 report to a board. But my job is to oversee the day-to-day  
23 operation of the elections office and the staff and all of the  
24 various people that we employ to conduct an election.

25 **Q.** And I understand that Chatham County has a board of

1 registrars as well; is that correct?

2 **A.** Yes. We're separate from the board of registrars.

3 **Q.** Could you describe the difference in the duties between  
4 the two and how they interact, if at all?

5 **A.** Well, the duties of the two are distinctively different in  
6 that the registrar is in charge of registering voters. They  
7 conduct the absentee functions within a county and -- which  
8 includes early voting.

9 And our office, we actually are sort of the architect of  
10 the election. We are the one that qualifies candidates. We  
11 put together the ballot. We get polling places. We recruit  
12 poll workers. We conduct training. We do the nuts and bolts  
13 of putting an election together. And we support the registrar  
14 in their functions for early voting and absentee also.

15 **Q.** And when you describe support, what do you mean by that?

16 **A.** Well, in absentee, of course, they use the paper ballots.  
17 And we generate those for them. We currently use a machine to  
18 produce those as they need them to contain cost. And the other  
19 is for early voting they use the same equipment we use for  
20 election day, which is the DRE systems.

21 And we prepare all of that equipment for them well ahead  
22 of the election because early voting starts 21 days ahead of  
23 the election. And if we are conducting a federal or state,  
24 they have 45 days for absentee.

25 **Q.** What is the size of the voting population in Chatham



1 County?

2 **A.** We currently have 207,000 registered voters.

3 THE COURT: 207 or 270?

4 THE WITNESS: 207, ma'am.

5 **Q.** (BY MR. MILLER) Is that active registered voters?

6 **A.** That is the active. I believe there are about 20,000  
7 additional inactive voters on top of that. We have had a  
8 tremendous growth increase last year in the 2018 election  
9 cycle.

10 **Q.** Sure. What kind of election day, early voting, absentee  
11 setup do you have in Chatham County? Not just election day  
12 specifically -- but elections setup generally do you have to  
13 handle these voters?

14 **A.** We have currently 90 voting precincts that we open on  
15 election day. We are actually in the process of looking at  
16 adding two more for one of our municipalities. They were kind  
17 of one of the growth areas in the county last year. So we have  
18 those open.

19 The registrar has six early voting locations -- now, they  
20 are not open on election day, but they are in advance of it --  
21 that they operate. And we have -- we hire about 600 people to  
22 work on election day. And we deploy typically about 500, 550  
23 voting machines.

24 **Q.** Okay. And in terms of staff, do you have full-time staff  
25 and part-time staff in addition to those voters?

1 **A.** I have a staff of four full time, and we employ -- for  
2 election preparation, we employ an average of about eight  
3 seasonal workers. And most of these are people that we  
4 actually use as poll workers, poll managers. But they work for  
5 us as part-time employees to do election preparation.

6 **Q.** What is your typical process for preparing to conduct an  
7 election in Chatham County?

8 **A.** We basically as an election is approaching -- obviously if  
9 there's qualification, we go through the legal process of  
10 publishing qualification, having candidates qualify. And then  
11 at the close of qualifying when all the candidates are  
12 collected, if there are any referendums or whatever, we  
13 collaborate with a ballot builder to build a database, which  
14 runs the election.

15 And we have to go through an arduous proofing process with  
16 ballots, which usually takes about a week's time. And then  
17 once that is done, we then actually begin the physical  
18 preparation of the equipment. And normally my team takes about  
19 two weeks to prepare just the equipment for the election  
20 purposes.

21 We have to have those things ready -- we have to have --  
22 for example, when early voting is happening, we have to have  
23 the equipment for early voting, which is, you know, three weeks  
24 ahead of the elections. So we usually have that equipment  
25 ready at least, like, you know, five weeks ahead of the

1 election time.

2 **Q.** And I guess to sum it up, how far out would you start this  
3 kind of prep work for the election?

4 **A.** In a typical election, the concentrated preparation is  
5 about eight weeks of actual -- when our teams are in and  
6 preparing the equipment, preparing the ballots, and the other  
7 things that we have to do.

8 We have some things that we do in advance of that, such as  
9 we have to prepare our training material, we have to hire  
10 staff, and all that.

11 So, for example, for this year, my staff has already been  
12 working on staffing polls for November.

13 **Q.** And with respect to the training you referred to, do you  
14 have responsibilities related to the training of those poll  
15 workers or how does that work?

16 **A.** That is a direct responsibility that we have. Every major  
17 election, we have to -- we have to train every poll worker.  
18 And, you know, the majority of our poll workers are returning  
19 workers. But they still have to go through about three hours  
20 of training.

21 And if we have new poll workers, we have additional  
22 training that we provide them to give them the basic skills  
23 before putting them out in the poll.

24 **Q.** Let's talk about 2019. Is the Chatham Board of Elections  
25 scheduled to conduct elections this year?

1 **A.** Yes. 2019 is a municipal election cycle year, and we  
2 currently have eight cities that we conduct elections for. And  
3 this year, we're conducting elections for six of those eight.  
4 Two of the smaller cities are not holding elections this year.

5 But we also -- in addition to that, we have a countywide  
6 election for two referendums.

7 **Q.** Is that list final? Is it possible there could be more?

8 **A.** Well, there are some potential variances in what we have.  
9 One of the cities is expecting to possibly have an additional  
10 special election occur because they have a candidate who is  
11 currently an elected official who is thinking of qualifying for  
12 a different office. Once a person qualifies, that will create  
13 a vacancy in their council, and we'll have to turn right around  
14 and run a special election for them to fill that vacancy.

15 **Q.** Could there potentially be others?

16 **A.** In this business, you really never know. Somebody could  
17 die. You know, somebody could drop -- could resign from  
18 office. So something could develop between now and then.

19 **Q.** When you talk about running elections for the cities, does  
20 the Chatham Board of Elections or Board of Registrars, to your  
21 knowledge, have an intergovernmental agreement with these  
22 municipalities?

23 **A.** Surprisingly, we don't have a direct intergovernmental  
24 agreement with our cities. Since I've been in the -- prior to  
25 my coming on board in 2004, the cities and the counties just

1 pretty much had an agreement that the superintendent, us, would  
2 run their elections.

3 But each municipality at the beginning of the year has to  
4 pass a resolution requesting our services. In this case, the  
5 six that we're doing this year have all done that.

6 **Q.** And given that you don't have an agreement or contractual  
7 relationship, how do you work out expenses for those elections?

8 **A.** We bill them for the direct cost that beyond -- we don't  
9 charge them, like, for my salary. But we charge them for the  
10 salaries for the people who come in and prepare the election,  
11 for the ballots that we print, for the transportation cost, the  
12 rental cost on the polling places. Anything that we encumber  
13 to actually hold that election above our basic operating  
14 expense of having an office, we bill that out proportionate to  
15 the number of voting precincts that they have.

16 **Q.** But you don't charge for machines; correct?

17 **A.** No. The machines -- since the machines are something that  
18 we have, we provide all of that as a direct -- as part of the  
19 service we provide. We just charge them for things that we  
20 spend money on.

21 **Q.** Is that state law that you can't charge that?

22 **A.** No. I don't know if there is a law that says we can't.  
23 But, you know, certainly the state law provides that we can  
24 conduct elections on behalf of cities and charge them  
25 reasonable expenses --

1           THE COURT: I'm not sure. So you don't charge them  
2 the expenses of upkeep, logic and accuracy testing on the DREs,  
3 or you do?

4           THE WITNESS: We charge them for the labor -- for the  
5 staff that we bring in for the hours that they are working.  
6 But actually like on a per unit basis, no, ma'am.

7 **Q. (BY MR. MILLER)** Mr. Bridges, for these 2019 elections,  
8 what kind of equipment do you intend to utilize?

9 **A.** Currently we're planning to use the system that we have,  
10 which is the DREs for the voting -- for early voting and for  
11 in-person voting in the polls. And we will use the optical  
12 scan equipment that we have for the absentee by mail and  
13 provisional.

14 **Q.** And how many pieces of that equipment do you have?

15 **A.** I have 663 DRE systems. I have eight optical scan units.  
16 And I have two ballot-on-demand printers that we use for  
17 printing the absentee provisional ballots.

18 **Q.** How do you store that equipment at your location?

19 **A.** Well, we have a warehouse that we're co-located with.  
20 We're fortunate we're in an old Air National Guard building,  
21 which is an extremely durable building. And within that  
22 facility, we have a completely encased and controlled facility  
23 that is -- it is a building that is out of a building,  
24 so-to-speak.

25 **Q.** Can you describe a little bit that warehouse security,

1 things like that?

2 **A.** What we have is an old maintenance bay from an Air  
3 National Guard facility with ten-inch thick concrete solid  
4 walls, concrete roof. We have -- because we're weather prone,  
5 we have storm-rated windows. We also have a lot of security on  
6 the building.

7 **Q.** Can you describe your past experience utilizing DREs for  
8 elections?

9 **A.** Well, actually the DRE systems have worked extremely well  
10 over the years we have had it. Since I've been with the  
11 county, the DRE equipment we have has been used for 52  
12 elections and 50 under my tenure. And in all of the elections  
13 we've had, we've had the one or two voters who touch something  
14 and, you know, had to retouch it.

15 But we have never had a case where a machine malfunctioned  
16 and lost any votes or anything at the end of the election where  
17 it brought the election into question.

18 We did have an issue one time during a recount, not with  
19 the DREs. But actually during a recount, we had a variance of  
20 one vote in the recount. And it came from the hand-marked  
21 absentee ballots. We lost a vote. Not a ballot. But one of  
22 the votes didn't scan the same way the second time.

23 **Q.** You mentioned with respect to your building and facility  
24 and things like that. Are you aware of the Department of  
25 Homeland Security's offer for assessment to localities?

1 **A.** Yes, sir, I am. We have -- we have actually had a  
2 physical site inspection, both on our infrastructure and on our  
3 facilities. And they came down twice and inspected our  
4 facility and issued a report to us.

5 And we got an extremely favorable report. I think they  
6 only identified one item that they would like us to do. And it  
7 was exterior to the facility. And that item is under -- it has  
8 actually been budgeted for this year.

9 **Q.** I notice you're describing in vague and careful terms  
10 item. Is there a reason you are using that kind of  
11 terminology?

12 **A.** Well, the Department of Homeland Security has declared  
13 that election infrastructure is critical infrastructure. So  
14 basically I have the only two copies of the report locked in my  
15 safe. No electronic copies. And they basically say you don't  
16 share this with anybody except on a need-to-know basis.

17 **MR. KNAPP:** I have an objection. First of all, he is  
18 talking about a report that is not attached to his declaration,  
19 and so it is not covered in his declaration. So it is a  
20 surprise to what he is saying. He is also testifying about a  
21 document that is locked away that is not here today.

22 **MR. MILLER:** Your Honor, with respect to the first  
23 matter, we're talking about a fact witness as opposed to an  
24 expert witness. I think the delineation the plaintiffs were  
25 referring to was an expert witness declaration being somewhat



1 akin to an expert's report.

2           Nonetheless, with respect to the second issue,  
3 Mr. Bridges is not talking about the contents of that document.  
4 He's talking about the existence of a document. If plaintiffs  
5 don't want to admit and don't want to ask questions about the  
6 security measures in Chatham County, that is perfectly fine.  
7 We'll move on.

8           MR. KNAPP: He was testifying as to what the security  
9 report said. That is what I object to.

10           THE COURT: Well, I think he can't testify about what  
11 it says unless you produce it.

12           MR. MILLER: Frankly, Your Honor, we would be happy  
13 to produce it. But the reality is of the classified nature of  
14 it. So I will move on.

15           THE COURT: So when was the report though?

16           THE WITNESS: About ten months ago.

17 **Q. (BY MR. MILLER)** Mr. Bridges, are you familiar with the  
18 relief plaintiffs in this case are requesting for the 2019  
19 elections?

20 **A.** I believe that what they are looking to do is to move to  
21 hand-marked paper ballots as the election system or possibly  
22 moving to a -- either with current technology or different  
23 technology, if I recall.

24 **Q.** And let's talk about the scenario of a different  
25 technology, of replacing all of the equipment. What would that

1 require in order for you to conduct the 2019 elections as  
2 scheduled?

3 **A.** Well, first off, I would have to determine what type of  
4 system to purchase. If it was not predisposed, then I would  
5 have to do some investigation to determine what to buy. I  
6 would then have to determine the quantity of equipment that  
7 would be necessary to conduct the election and seek funding.  
8 And I don't believe I have funding that would cover any of this  
9 at this point.

10 Then we would have to go through actually placing an order  
11 with a vendor and having equipment made and delivered and then  
12 learning how to use it and training the staff. And it is not  
13 only training us, but we have to train our poll workers who are  
14 used to our current voting system at this point.

15 And, secondarily, you have to do voter education on  
16 something like this. You can't just throw this out and have  
17 the voters walk in the poll.

18 **Q.** And if you were required to implement an entirely new  
19 system, are you aware of what kind of procurement would be  
20 required for optical scanners and ballot marking devices?

21 **A.** Well, something of this nature, if we were replacing  
22 everything we had and we had to do this, I would have to  
23 involve our county's purchasing department. They would have to  
24 go through a bid process. Because you would be talking about  
25 significant expenditure here.

1 Q. And with respect to the procurement process that I think  
2 you were referring to and just gathering the equipment, can you  
3 speak to any of that?

4 A. Well, if we're talking replacing -- if we're talking  
5 acquiring the same kind of equipment we have, it would just be  
6 sourcing -- finding it available and then determining the  
7 funding.

8 Q. For now for the whole enchilada?

9 A. For the whole enchilada, we're talking the new meal deal.

10 THE COURT: I'm sorry. I'm not sure what is  
11 encompassed in the whole enchilada here.

12 MR. MILLER: I apologize, Your Honor. It was my  
13 attempt to not lead the witness.

14 THE COURT: That is fine.

15 Q. (BY MR. MILLER) Mr. Bridges, with respect to this  
16 scenario, we're talking about replacement of new optical  
17 scanners of a different kind.

18 A. Okay.

19 Q. And of new ballot marking devices of one in each precinct.

20 A. Okay.

21 Q. And a new GEMS replacement.

22 A. Well, that would be a fairly significant thing. One, if  
23 we were to go with a -- presumably, we would be going with  
24 hand-marked paper ballots scanned in polling places. We would  
25 have to acquire sufficient scanners -- we would have to

1 determine, first, which ones to get and acquire sufficient  
2 scanners and the appropriate security boxes to go with those.  
3 Because of privacy, you have to get a privacy station for each  
4 voter to stand at in a poll.

5       So today when we project the number of machines we have --  
6 for example, each DRE is a privacy station in and of itself.  
7 But we would have to provide a place the voter could stand --  
8 put their ballot, stand and mark and have room. So it would be  
9 essentially equivalent to replacing the DRE with a privacy  
10 stand.

11       You would have to have scanners sufficient to handle  
12 whatever was in the poll. Since we have 90 polling places, I  
13 would have to have a minimum of 90 scanning devices just for  
14 the polls.

15       THE COURT: Aren't you going to have scanning devices  
16 to accompany the ballot marking devices planned as well?

17       THE WITNESS: Yes, Your Honor. So I mean -- but that  
18 is what I'm talking about. We would have to have a scanner  
19 just to scan the hand-marked paper ballots. And if we were  
20 going with the new, then we would have to have a ballot marking  
21 station to provide for the ADA facilities that they offer. So  
22 there would be the two of those. The privacy stations that  
23 would go with that.

24       We would have to -- early voting would have to be  
25 equipped similarly. So the registrar's office is going to

1 operate six early voting sites. We would have to acquire the  
2 same type of equipment for each of those.

3 And if it was on par with what we have, we're talking  
4 purchasing somewhere north of 600 privacy stations to replace  
5 the DREs. And we would be talking somewhere around 120 or 130  
6 scanning devices. Then there would be 90 -- the six locations.  
7 It would be at least 100 ballot marking devices. So we would  
8 have those.

9 We operate -- we have a field force of 11 people that  
10 are on the street backing up our election on election day.  
11 They carry spare equipment.

12 THE COURT: They what?

13 THE WITNESS: They carry spare equipment. We cannot  
14 operate with one device in a polling place on election day, for  
15 fear if it fails. If I have one scanner in a poll and it fails  
16 and there is nothing to replace it, then I have to have  
17 something nearby to put in its place.

18 So most of the equipment we have today, we put no  
19 less than two of everything in a polling place. And we have  
20 backup equipment out on the street. So we would have to have  
21 sufficient spare equipment to back up the equipment. Because  
22 if the scanner quits working, the voters can't cast their  
23 ballots.

24 THE COURT: But that's also -- if you have a new  
25 system with a ballot marking system, you'll have the same

1 issue?

2 THE WITNESS: Yes. So that is what I'm saying.  
3 Factoring all that in, we're talking 130, 140 devices we would  
4 have to purchase at minimum just to open the door to process  
5 those ballots. And it would be at least 100 ballot marking  
6 devices, the same thing.

7 We would also have to look at the back office side of  
8 this for processing the absentees and provisionals that we do  
9 post election. Having central office equipment to use scanners  
10 similar to those in the polls -- higher speed scanners to  
11 handle that process. And then there would be the tabulation  
12 system, which is akin to the GEMS system that we use today.

13 **Q. (BY MR. MILLER)** To the point of Your Honor's question,  
14 what is your understanding of who is paying for the new system  
15 coming by state law?

16 **A.** The one that is under the proposed system the state is  
17 paying for. But if we're done outside of the state system,  
18 then we don't know. Obviously we would look to the state. But  
19 we might have to look to the county governing authority.

20 **Q.** You came up with some estimates as to the potential cost  
21 of the system; is that correct?

22 **A.** Yes, sir.

23 **Q.** And how did you estimate these numbers?

24 **A.** I had been looking at some information from one of the  
25 Brennan Center reports on the average cost of the scanning

1 device, ballot marking, and each run in the 5- to 6000-dollar  
2 ranges.

3 And projecting the numbers that I was kind of using  
4 earlier, we would be looking at probably \$900,000 minimum to  
5 implement this kind of system in our county at this point.

6 **Q.** Just rough back-of-the-napkin math?

7 **A.** Yes.

8 **Q.** Could you lower that number by utilizing central scanning?

9 **A.** We could. I think it is a dangerous precedent though.

10 **Q.** And why is that?

11 **A.** Well, we have experience with hand-marked paper ballots  
12 today because absentees are hand marked. We experience about a  
13 four percent error rate on hand-marked ballots. Voters change  
14 their mind. They don't read the instructions on the ballot  
15 that says fill in the oval. They make checkmarks. They do Xs.  
16 They make a mark. Then they say, you know, that is not what I  
17 want. They draw an X through it. They go down and mark the  
18 one below. They draw a little arrow and say, use this one.  
19 The machines don't read that real well. Sometimes they just  
20 mark two circles.

21 So if you are doing scanning in a poll, it is going to be  
22 caught in the poll while the voter is standing there because  
23 the voter is going to be feeding the ballot to the machine. If  
24 you bring that to the central office, then that problem is  
25 going to come back to the central office post election. The

1 voter has gone home. They cast their ballot. They are happy.

2 The folks in the central office -- now all of a sudden if  
3 you have -- where like last November, we processed 10,000  
4 absentee ballots. We had to hand duplicate 400 of those due to  
5 mismarkings or whatever. So we also cast 100,000 ballots in  
6 the polls last year.

7 So if I had four percent of that, I would have 4000  
8 hand-marked paper ballots that we would have to possibly  
9 duplicate using that same error rate. And at ten minutes a  
10 ballot, that is a lot of time.

11 **Q.** How does that duplication process work?

12 **A.** During the process when we are processing the ballots --  
13 I'll use the absentee process because that is where we're  
14 currently handling them. We will attempt to -- unless a ballot  
15 is, you know, visibly damaged or mismarked or whatever, we will  
16 attempt to scan it. And if it scans, we will process it. Of  
17 course, that's directly from the voter's intent.

18 If it will not scan, then we have two people review that  
19 ballot and determine the intent. Then we have two additional  
20 people who actually do the duplication. And then it comes back  
21 to a review panel of two.

22 If at any point during that process we have a problem like  
23 they really can't tell which mark is which or what the intent  
24 is, then we have a committee -- I have an elected board. So we  
25 will get one of the Republicans, one of the Democrats, and our



1 chairman. And they will vote a vote review panel and actually  
2 look at it and vote to make a choice. And there being three of  
3 them, the tie will be broken at that point. Then the staff  
4 will take that direction and continue duplicating that ballot.

5 **Q.** Let's talk about the other scenario you were -- we were  
6 referring to earlier where you are continuing to use the  
7 optical scanners that you currently use for absentee voting.

8 What would that require to implement?

9 **A.** Well, there again, we don't have but eight scanners. So  
10 we would have to acquire sufficient scanners again for the 90  
11 voting locations. And that we have -- those scanners because  
12 they are older technology, they cannot handle -- one scanner  
13 can't hold all of the ballots that we have. So in the poll,  
14 that is not a problem, you know, because the ballot -- you  
15 know, the ballot scanner can handle what is in the poll --

16 THE COURT: Because what?

17 THE WITNESS: The ballot scanners that we have today,  
18 Your Honor, are older. They are probably about 25-year-old  
19 technology at this point. They can only handle about 15 to 20  
20 ballot styles, and the ballot style really is like what  
21 jurisdictions fall within a precinct.

22 Since we have 90 precincts and we have enough  
23 jurisdictions, we have about 150 variations that can fall. So  
24 when we process an absentee, we have to break the ballots down  
25 by which precinct they come from into groups.

1           So early voting, for example, if it were to use the  
2 current technology, each early voting site would have to have  
3 five ballot scanners. Because right now it takes five minutes  
4 to process our ballots. So when a voter finished marking it,  
5 they would then have to go over and be sent to a certain  
6 machine to scan the ballot.

7           So I think when I was projecting, we would have to  
8 get about 140 of those.

9       **Q. (BY MR. MILLER)** Just due to the nature of the technology  
10 of those?

11       **A.** Yes.

12           THE COURT: Because they are out of date and don't  
13 accommodate the sizes?

14           THE WITNESS: They are older than the DREs are. They  
15 were actually the first equipment that -- the DRE system we  
16 have today, they were -- the ballot scanners were actually the  
17 first equipment that company fielded. They followed it later  
18 with the DRE.

19           THE COURT: '98, 2000?

20           THE WITNESS: I know that several counties had them  
21 in production, service in 1998.

22       **Q. (BY MR. MILLER)** Just to clarify, when you said ballot  
23 identification, that would be similar to the ballot  
24 combination, the number that brings --

25       **A.** Right. Right. The combination -- the ballot combination

1 makes a ballot unique for a voter.

2 **Q.** And what about the cost of printing? Have you considered  
3 that?

4 **A.** Yes. I used to actually preprint the absentee and  
5 provisional ballots for the elections. And in great volume, we  
6 could print them for about 40 cents a ballot. With the system  
7 that we got to save money, it actually costs about 50 cents a  
8 ballot to print. But it is not designed for the high volume  
9 that would be encountered in this.

10 If we were to -- you know, there is a state statute that  
11 says a superintendent will provide sufficient ballots. It just  
12 doesn't say what sufficient means. It means if you happen to  
13 be one short, you've missed the mark.

14 So we would have to actually project the number of  
15 potential votes or potential electors that are going to show up  
16 in the election. Preprint and distribute that number of  
17 ballots to the polls with the current technology that we have.

18 And, you know, for an election like we have, if we  
19 projected 50 percent election, we would have to distribute well  
20 over 100,000 ballots to the street. Plus we would have ballots  
21 that would be distributed to the early voting.

22 So we would probably have to print somewhere in the  
23 neighborhood of 150- to 175,000 ballots at 50 cents apiece. It  
24 would be well over \$100,000 expense just to print those  
25 ballots. For example, today I only pay \$185,000 to run an

1 election today.

2 **Q.** I'm sorry. I didn't catch that.

3 **A.** An average election right now runs \$185,000.

4 **Q.** Okay. And --

5 THE COURT: Could I just get back to the scanner for  
6 a second though.

7 You are saying that they have different page sizes?  
8 I'm trying to understand why you have to have five different  
9 types of scanners.

10 THE WITNESS: No, Your Honor. Consider like we have  
11 eight commission districts, eight school districts, and those  
12 things. When all of those things lay together, where each  
13 district coincides, it creates a thing called a ballot  
14 combination and that makes that ballot unique. So you, for  
15 example, will have this house, this senate --

16 THE COURT: I understand the unique ballot.

17 THE WITNESS: So what happens is because of the  
18 number of jurisdictions we have and the number of voting  
19 precincts, we have 146 variations within that. And the ballot  
20 scanners that we have can only handle so many. It can't handle  
21 all of those. So one scanner can't handle every ballot we have  
22 because they are their precinct ID and they have all the  
23 various other things to go with them.

24 **Q.** (BY MR. MILLER) Mr. Bridges --

25 THE COURT: I'm not clear. But maybe you can

1 clarify.

2 MR. MILLER: I think I can help a little bit.

3 **Q. (BY MR. MILLER)** Does that have to do with kind of the  
4 memory of the optical scanners what -- how many different  
5 ballot combinations one optical scanner can read?

6 **A.** That is correct. Yes.

7 **Q.** So when you have -- I apologize -- 100 -- how many ballot  
8 combos?

9 **A.** Last time I looked, it was 146.

10 **Q.** 146 ballot combinations. And your scanners can handle how  
11 many different types?

12 **A.** 30 maybe.

13 **Q.** 30. So each of those, you have got to be able to fit into  
14 the memory --

15 **A.** -- of that scanner.

16 **Q.** So that reads the ballot. So in other words --

17 MR. MILLER: And I apologize. I'm leading at this  
18 point. I'm trying to help clarify.

19 THE COURT: That's all right.

20 **Q. (BY MR. MILLER)** So at that point it is the scanning again  
21 so that the scanner will recognize the ballot combination  
22 number?

23 **A.** That's correct. I mean, each ballot has a unique  
24 signature on the bottom identifying what kind of ballot it is.  
25 So we group them by a precinct range. So this scanner takes

1 precincts in this range. The next one takes the next. And  
2 then so if you put it in the wrong scanner, the scanner just  
3 doesn't recognize it. It rejects it.

4 THE COURT: So it really isn't a scanner as we know a  
5 scanner in our current modern era. Because if I put it -- it  
6 doesn't matter what I put into a scanner myself. It is going  
7 to scan it and be able to produce a copy?

8 THE WITNESS: Well, that would be correct, Your  
9 Honor. The newer technology certainly takes -- you know,  
10 covers those hurdles.

11 **Q. (BY MR. MILLER)** All this is the memory -- all this is  
12 because the scanner is tabulating and counting the ballots  
13 inside of it?

14 **A.** That's correct. It is storing the marks that are on the  
15 ballot that pass through it as having to identify the various  
16 buckets to store those counts in.

17 THE COURT: All right.

18 MR. MILLER: I apologize for --

19 THE COURT: That's all right. Thank you for moving  
20 things forward because I would have kept on going.

21 **Q. (BY MR. MILLER)** Mr. Bridges, you looked at cost estimates  
22 and what you are expecting. Do you have money in your budget  
23 for these?

24 **A.** No, I don't. In fact, my new budget just went into effect  
25 July 1st. And my budget this year is \$1,073,000. And I didn't

1 get everything I asked for in this budget. And, you know, if  
2 we're looking at like -- for example, if we went with the  
3 BMD-type system, it is about \$900,000. Or if we were looking  
4 at, you know, acquiring current technology equipment, we are  
5 probably looking at half-a-million-dollar expenditures, neither  
6 of which I have the money for.

7 **Q.** And let's talk about the timeline for this proposed new  
8 system. When does early voting begin?

9 **A.** Early voting I believe starts October 15th this year.

10 **Q.** And, of course, training and all that prior to that?

11 **A.** Our training classes start September 8th.

12 **Q.** Okay. And, presumably, you would need to be prepared in  
13 advance of that start date because of your general obligations  
14 and your support obligations for the board of registrars?

15 **A.** Well, certainly we need to -- we have to be prepared with  
16 the equipment the week prior to early voting starting so the  
17 registrar can equip their sites because they have to do  
18 their -- the due diligence work they get when they receive the  
19 equipment from us.

20 We have to have the ballots printed. And if we were to  
21 make a change, we would also need to know what that change is  
22 in time to develop any new procedures or processes. And to  
23 train our poll workers, which would mean essentially we would  
24 have to make decisions in the next three to four weeks and  
25 prepare training material for something that we don't even know

1 how to use yet possibly.

2 **Q.** With respect to the totality of those issues and the  
3 budget considerations and what you mentioned you have, would  
4 you need to consult with your board on this?

5 **A.** I certainly would have to -- these are decisions that I  
6 have to deal with. But I do answer to a board, and they are  
7 the final authority.

8 **Q.** In your experience, does this transition right now seem  
9 doable?

10 **A.** You want my opinion?

11 **Q.** In your past experience.

12 **A.** In my past experience, I actually was in the computer  
13 business for a number of years prior to getting into this  
14 field. And I dealt with --

15 MR. KNAPP: Your Honor, I believe this is outside the  
16 scope of his declaration. He spoke to the cost of the  
17 transition. But he did not talk about whether it was possible  
18 or not possible. So I object to this line of questioning.

19 THE COURT: Well, I'll allow him to testify based on  
20 his experience. But we haven't heard about computer  
21 experience. If he wants to testify because I think it is  
22 consistent with this about just simply based on your experience  
23 as a supervisor -- you know, he is not an expert witness. But  
24 he -- it is his lay opinion. That is all right.

25 MR. MILLER: Respectfully, I did not intend to ask



1 for an expert opinion.

2 **Q.** (BY MR. MILLER) You have your declaration with you;  
3 correct?

4 **A.** Yes.

5 **Q.** Could you turn to Paragraph 18.

6 **A.** Paragraph 18.

7 **Q.** So I think could you speak to some of the issues you  
8 raised in Paragraph 18.

9 **A.** Well, I think in Paragraph 18 I pointed out that basically  
10 if we were to make a change right now we have about 40 working  
11 days in which to essentially design, determine, get quotes,  
12 fund, order, receive, implement, learn how to use it. That is  
13 not really a lot of time.

14 You know, these all have to -- for us to properly train  
15 our staff, we would have to do all of these things in the next,  
16 say, 20 working days just to be able to train our staff.

17 And something that I didn't put in here is when you make  
18 these kind of changes it affects your staffing. Most people  
19 are aware poll workers are generally more older people. They  
20 don't take well to changes. Generally when we make these kind  
21 of changes, we lose people. So we would probably have an  
22 exodus of some degree.

23 But addressing this, I think -- I don't think there's  
24 really adequate time to properly plan something of this  
25 magnitude and go through all the necessary steps and implement

1 in time for this election.

2 **Q.** And what about the City of Savannah, as one of our larger  
3 cities in the state? Can you talk at all about what they would  
4 be looking at if Chatham were not running their election?

5 **A.** They have no experience in conducting an election  
6 historically. I don't believe they -- in the years that  
7 anybody that is working there or our time, there is nobody  
8 that's ever conducted an election. The county has conducted  
9 their elections throughout time.

10 So they don't have anybody -- they don't have the  
11 knowledge. They don't have the equipment. So if we were to  
12 look at a change like this and maybe offer to let them run  
13 their own election, they really have nowhere to start. They  
14 would have even less time than we would because, you know, the  
15 election is coming to them. They are going to qualify in just  
16 two weeks.

17 **MR. MILLER:** That is all the questions I have, Your  
18 Honor.

19 **CROSS-EXAMINATION**

20 **BY MR. KNAPP:**

21 **Q.** Mr. Bridges, Halsey Knapp. How are you?

22 **A.** I'm fine, sir. How are you doing?

23 **Q.** I'm good. I hope we can get you out of here quickly so  
24 you can get back on 16. I know you are looking forward to it.

25 **A.** I'm looking forward to Atlanta's rush hour and four hours

1 beyond it.

2 THE COURT: Don't worry. You are not going to get  
3 into the rush hour the way we are going.

4 **Q. (BY MR. KNAPP)** There is always Macon in between.

5 **A.** This is true.

6 **Q.** Okay. Let's talk a little bit about the November 2018  
7 election. You used eight scanners to handle 10,000 mail-in  
8 absentee ballots; is that correct?

9 **A.** That is correct.

10 **Q.** How many styles did those scanners handle in counting  
11 those 10,000 mail-in ballots?

12 **A.** Well, the eight scanners -- we only use five at a time in  
13 production because the purpose of the scanners that we have are  
14 to process either the mail ballots absentee or the provisional  
15 ballots. We use the same scanners for each. We just change  
16 out the programming in it to support which ballot style it is.  
17 But it takes us five scanners to process the ballots from our  
18 90 polling places.

19 **Q.** I understand that. My question is: How many different  
20 styles were they processed to handle in the November 2018  
21 election?

22 **A.** The same number I said earlier. Each one handles about 30  
23 styles. So the ballots are divided up across the machines so  
24 that they each get around 30.

25 **Q.** So in the forthcoming November 2019 election, if you use

1 centralized counting of your scanners, they could handle all  
2 the ballot styles, couldn't they?

3 **A.** Certainly.

4 **Q.** Okay. Now, are there any elections in September of 2019?

5 **A.** Not currently.

6 **Q.** Okay. So the first elections you have after today are  
7 November of 2019?

8 **A.** Yes, sir.

9 **Q.** And what do you expect the turnout to be? I assume it is  
10 part of your responsibilities to make some type of  
11 prognostication of what the turnout is going to be.

12 **A.** We project the city elections to probably run about  
13 50 percent turnout.

14 **Q.** 50 percent turnout. And what would that be in absolute  
15 number of votes?

16 **A.** Since we're running -- actually we're running a full  
17 county election at this time. So we'll probably be seeing 60-  
18 to 70,000 minimum ballots cast in this.

19 **Q.** And, certainly, that is going to be less than the 100,000  
20 you saw a year ago?

21 **A.** That is correct.

22 **Q.** Okay. Now, you said you grew up in Savannah?

23 **A.** Yes, sir.

24 **Q.** So you voted in Savannah all your life?

25 **A.** I did.

1 Q. Do you remember the punch card ballots?

2 A. Vaguely.

3 Q. The machines that you had to run the handle down and punch  
4 them down?

5 A. I remember the machines. I remember those.

6 Q. Do you recall that in the year 2000 Chatham County elected  
7 to use paper ballots?

8 A. I'm aware of that.

9 Q. You are aware that you didn't talk about that in your  
10 declaration, did you?

11 A. Well, I wasn't working there at that time.

12 Q. You were voting though, weren't you?

13 A. Yes, sir.

14 Q. Okay. And for the year 2000, Chatham County had to train  
15 its staff how to handle hand-marked paper ballots; correct?

16 A. Yes, sir.

17 Q. And they had to train their poll workers to handle them;  
18 correct?

19 A. Yes, sir.

20 Q. And they had to educate the public on how to vote on a  
21 hand-marked paper ballot; correct?

22 A. Yes, sir.

23 Q. And the Chatham County Board elected to do it a second  
24 year in 2001; is that correct?

25 A. Well, again, I wasn't there then. So when they started

1 and when they finished, this is speculation on my part. I do  
2 recall voting on the system when I was there.

3 **Q.** You recall voting more than one year on that system?

4 **A.** Yes, sir.

5 MR. MILLER: Objection, Your Honor. I think  
6 Mr. Knapp raised the issue of going outside the declaration. I  
7 guess he is taking a different stance on it now.

8 THE COURT: Well, he is trying to cross-examine him.  
9 And obviously I didn't confine you to the declaration.

10 MR. MILLER: I understand. But in fairness --

11 THE COURT: I did not confine you to the declaration.  
12 I respect the difference between that and the expert  
13 declaration. I just didn't want him to opine about an area of  
14 expertise we hadn't gone into.

15 **Q. (BY MR. KNAPP)** So, again, the Chatham County Board of  
16 Elections bipartisan elected to have a second year of paper  
17 ballots in 2001, didn't they?

18 **A.** Well, I believe that when they put the system in -- and I  
19 don't know exactly which year that was -- they used it for two  
20 or three years running.

21 **Q.** Okay.

22 **A.** And I believe the system was replaced by the current DRE  
23 system.

24 **Q.** And that is because you understand that the Secretary of  
25 State dictated that DRE machines had to be used in statewide

1 elections beginning in the year 2003?

2 **A.** That's current state law.

3 **Q.** Okay. Now, in your -- do you have any recollection of  
4 there being any allegations that ballot boxes were thrown in  
5 lakes or rivers when these paper ballots were the system used  
6 in Chatham County?

7 **A.** I have no idea what you are talking about.

8 **Q.** Okay. Do you have any knowledge that the insiders were  
9 intercepting ballots or being intercepted on the way to a  
10 centralized tabulation center and therefore altered in some  
11 way?

12 **A.** I give you the same answer.

13 **Q.** Were any ballots lost when the hand-marked ballot system  
14 was used to your knowledge?

15 **A.** Again, I have no knowledge. I was a voter then. I was  
16 not an election official.

17 **Q.** You were paying attention though, weren't you?

18 **A.** Not that close attention.

19 **Q.** You think if a scandal came up where someone took a ballot  
20 box and it was found in the river that would have passed you  
21 by?

22 **A.** I might have heard that.

23 MR. MILLER: Your Honor, at this point, I'm going to  
24 object again as asking about speculation of hypotheticals that,  
25 frankly, he hasn't laid any sort of foundation to what his

1 knowledge would be on. He already said --

2 THE COURT: He is a citizen. He is a voter. And I  
3 think he has made his point, and we should move on now.

4 **Q. (BY MR. KNAPP)** In the machines that you have, those eight  
5 machines, are they legacy machines that remain from the days  
6 when paper ballots were being used countywide?

7 **A.** The machines we currently have were actually provided as  
8 part of the statewide system. Although they are the same style  
9 of machines that the county used prior.

10 **Q.** Are those AccuVote scanners?

11 **A.** AccuVote-OS.

12 **Q.** Now, to this day, you are using scanners to count these  
13 mail-in absentee ballots; correct?

14 **A.** That's correct.

15 **Q.** So your staff is trained on how to handle that?

16 **A.** Yes, they are.

17 **Q.** And if there was a training effort that needed to be made,  
18 your staff would then train the poll managers on how to handle  
19 them; is that correct?

20 **A.** I don't think your question is really -- is really a fair  
21 question because they are not parallel. We do not -- my office  
22 does not process a voter. My office handles the ballots that  
23 come in from the mail, which are processed by the registrar's  
24 office. We receive those. We balance those to the registrar.  
25 We process those.



1 I have a staff that is capable of opening those, going  
2 through those, scanning those. But as far as like the process  
3 and procedure within a poll, we don't have anybody who has  
4 experience with that right now.

5 **Q.** Okay. Now, how -- again, how are the mail-in ballots  
6 handled?

7 **A.** The registrar is responsible for issuing and receiving  
8 absentee by mail ballots.

9 **Q.** And how do they handle them?

10 **A.** You might have to address that question to them. I don't  
11 do -- I don't do their operation.

12 **Q.** You don't know how the registrar handles and tabulates the  
13 mail-in ballots?

14 MR. MILLER: Objection, Your Honor. We covered this  
15 on direct. Savannah has separate Board of Elections and Board  
16 of Registrars. The Board of Registrars handles absentee  
17 mail-in ballots. Mr. Bridges does not have that personal  
18 knowledge as to the absentee mail-in ballots. And he has also  
19 answered this same question.

20 MR. KNAPP: He can answer it one way or the other.

21 THE COURT: Well -- all right. Is that -- your  
22 counsel summarized what he believed your testimony was, which  
23 may or may not be so. But I might have missed something.

24 Was that a correct summary what you just heard from  
25 this corner of the room from Mr. Miller, or have I missed

1 something?

2 THE WITNESS: Well, I was going to try to answer his  
3 question.

4 THE COURT: Go ahead.

5 THE WITNESS: We tabulate the ballots. That is the  
6 function. The board of elections as an election superintendent  
7 is responsible for counting the votes. We tabulate the  
8 election. That is done after 7:00 P.M. on election day.

9 The registrar -- you're a voter. You contact your  
10 registrar. You say, I need an absentee ballot. They go  
11 through a process internally. It is a very well-defined  
12 process that they go through. They issue you a ballot. They  
13 mail it to you. You fill it out. You mark it. You put it in  
14 an envelope, and you mail it back. They go through a process  
15 to receive a count that it has been returned.

16 On election day, they then transfer all of those to  
17 us with a list saying these ballots are here. We then have a  
18 team of people who count envelopes. We have got to make sure  
19 we have got the right number of envelopes. We don't open them  
20 up until we know we have the right number.

21 Then we remove the contents. At each stage, we  
22 rebalance what we have until we get to the actual ballot  
23 itself. And then once we get to the actual ballot, we then  
24 segregate the ballots into the various groups they have to go  
25 through for scanning purposes.

1           And if at any point a ballot falls out of that  
2 process, then it goes through the adjudication team, which is  
3 where duplication and those processes are done. We tabulate  
4 those. We don't issue. We don't receive. We don't -- we do  
5 not have people who are trained to in the polls at this stage  
6 of the game or on my staff people who have worked with the  
7 actual in the poll handing out the paper ballots.

8   **Q. (BY MR. KNAPP)** I was speaking about the tabulation of the  
9 votes on the evening of the election.

10 **A.** That is our responsibility.

11 **Q.** That is your responsibility, isn't it?

12 **A.** I just --

13 **Q.** It is handled by your staff; is that correct?

14 **A.** Correct.

15 **Q.** That is what I was trying to get at. So they are trained  
16 in actual tabulation of paper ballots; correct?

17 **A.** That's correct.

18 **Q.** Okay. Now, you talked a little bit about the four percent  
19 error rate that you have with people filling out paper ballots.

20           Is that a subject that can be addressed with voter  
21 education?

22 **A.** Well, certainly. But, you know, you have instructions on  
23 the ballot, the ballot that is handed to you as a voter. It  
24 says fill in the oval. But people still do checkmarks and Xs  
25 and circles and other things.

1           It says, you know, vote for the candidates. If you have a  
2 write-in, write the name. We have had people actually write  
3 every candidates' name on the write-in line on a ballot.  
4 People do -- I don't care how well you have advised them. They  
5 do different things.

6 **Q.** Of course, on a mail-in ballot, you are not there when  
7 they are filling out the ballot; correct?

8 **A.** Correct.

9 **Q.** So maybe the error rate you refer to might be different if  
10 they are filling that out in a polling place; is that correct?

11           MR. MILLER: Objection. Calls for speculation. He  
12 just testified that he hasn't done this before at a typical  
13 time. He doesn't know the difference.

14           MR. KNAPP: They did it in 2000 to 2002.

15           MR. MILLER: When he was not elections director.

16           THE COURT: All right. Sustained.

17           MR. KNAPP: I'm sorry. What was the ruling, Your  
18 Honor?

19           THE COURT: Sustained. I sustained the objection.

20           MR. KNAPP: Thank you. I'll move on.

21 **Q. (BY MR. KNAPP)** Now, have you actually gone out into the  
22 marketplace to look at what it would cost to purchase 120 or  
23 130 scanners?

24 **A.** No, not yet I have not. I mean, I have -- I'm aware of  
25 what the market costs are having seen it in the Brennan report.

1 And, you know, I'm aware of some of the equipment offerings  
2 that we have had the privilege to see.

3 **Q.** Do you know Ms. Duran at the Morgan County Board of  
4 Elections?

5 **A.** I believe I have met her.

6 **Q.** Okay. She testified that you could purchase scanners --  
7 AccuVote optical scanners and a secure ballot box for roughly  
8 \$1300 apiece.

9 Are you aware that there's locations that you can get  
10 those scanners for \$1300 and a ballot box?

11 **A.** No. But how much time do you want me to take looking for  
12 these little pockets of equipment?

13 **Q.** Well, the difference between -- you used an estimate of  
14 \$5000 a scanning unit; correct?

15 **A.** Right.

16 **Q.** So the difference between 1300 and 5000 is \$370 {sic} or  
17 approximately 60 percent difference in your estimate and cost;  
18 correct?

19 **A.** 1300 versus 5000 is about three to one.

20 **Q.** Yeah. Three to one. If, in fact, it is true that the  
21 purchase price of an AccuVote optical scanner and ballot box is  
22 \$1300, you have overstated by two-thirds the cost of  
23 implementing a paper ballot system in terms of the scanners;  
24 correct?

25 **A.** Based on what you just asked me, yes.

1 **Q.** Now, in your calculation, did you take into account that  
2 if you are using paper ballots that you won't have someone to  
3 prepare the DRE machines because DRE machines won't be being  
4 used? You didn't make an offset for that savings, did you?

5 **A.** No, sir. But there is a cost for preparing those also.

6 MR. KNAPP: That's all I have, Your Honor.

7 CROSS-EXAMINATION

8 BY MR. POWERS:

9 **Q.** Good afternoon, Mr. Bridges. John Powers representing the  
10 Coalition plaintiffs.

11 **A.** Good afternoon, Mr. Powers.

12 **Q.** I would like to make sure I had a couple of things  
13 straight from your testimony earlier. First, let's talk about  
14 the optical scanner.

15 In your declaration, you state that the scanner that you  
16 use is the AccuVote-OS 1.94W?

17 **A.** Well, I actually didn't use the 1.94W. We do have the  
18 AccuVote-OS, and I believe that is the correct revision.

19 **Q.** And is it your testimony today that the maximum number of  
20 ballot styles that the OS 1.94W can handle is somewhere between  
21 15 and 20?

22 **A.** I think it is somewhere between 15 and 30. I don't know  
23 the exact complexity. But, you know, it varies within that  
24 range.

25 **Q.** And, Mr. Bridges, you testified earlier that you

1 anticipate turnout in November might be about 50 percent?

2 **A.** Well, we project 50 percent because if you underproject,  
3 especially if you're preprinting ballots, then you are  
4 underprepared. And if you don't have enough ballots, then you  
5 have a real problem.

6 **Q.** Mr. Bridges, was turnout in the November 2015 election  
7 approximately 35 percent in Chatham County?

8 **A.** I would have to take your guess. I didn't look at the  
9 number before I came here.

10 **Q.** Do you know if the turnout in Chatham County November 2017  
11 election was 25 percent?

12 **A.** Again, I didn't -- I haven't looked at that today. I  
13 mean, I -- I may have provided that information to somebody at  
14 your group the other day. But, you know, I don't remember  
15 numbers off the top of my head.

16 **Q.** And in coming up with the 50 percent figure, did you look  
17 at --

18 **A.** I looked at the election results. The information I  
19 provided to your personnel today was from looking at election  
20 result reports.

21 I do need to point out 2017 was the smallest election year  
22 we have. It is the two smaller cities. Savannah is not part  
23 of that. Typically it is not a very big turnout election.

24 **Q.** Mr. Bridges, are there -- you mentioned there are 90  
25 precincts?

1 **A.** Yes.

2 **Q.** And is it your testimony that you don't think every single  
3 polling place needs a backup optical scanner, do you?

4 **A.** A backup scanner? If I were to deploy the AccuVote-OS, I  
5 would probably want a backup scanner because they are not as  
6 reliable as is new technology.

7 **Q.** Mr. Bridges, you didn't say that in your declaration, did  
8 you?

9 **A.** No, I did not.

10 **Q.** Mr. Bridges, could you have a secure container or  
11 emergency ballot box available in the event that an optical  
12 scanner had some kind of problem on election day?

13 **A.** The boxes that the scanners sit on that are secure  
14 containers are pretty large. The scanner is more of the  
15 concern you would have.

16 I did project -- in the numbers that I put in my  
17 declaration, I projected one scanner per. I also projected the  
18 number of scanners necessary to run the six early voting sites  
19 that would be open. And I did cover a certain number for our  
20 team that is on the street.

21 **Q.** So one optical scanner per polling place?

22 **A.** That is what I projected, yes.

23 **Q.** And --

24 **A.** But some of this was developed in a very short time frame  
25 when these questions were presented. I mean, generally, when



1 you look at doing something of this nature and scope, you take  
2 a little bit more time.

3 Because an election is a very serious thing. And we don't  
4 really -- we don't jump into anything and doing anything  
5 quickly. We make sure that we look at all aspects of it  
6 because the person we affect is the voter. And the voter  
7 expects a positive experience on election day. So we don't  
8 like to take risks without having things.

9 And the more experience you have, the better you can plan.  
10 Here, you know, we're talking about something that we don't  
11 have any experience doing. And, you know, some of these are  
12 rough estimates.

13 **Q.** Mr. Bridges, I would appreciate it if you would respond to  
14 my question. So you said you rushed when you were coming up  
15 with these calculations.

16 Do you need an opportunity to revisit?

17 **A.** No, I don't need an opportunity to revisit.

18 **Q.** And you already have a process in place to ensure the  
19 secure transfer of paper provisional ballots from polling  
20 places to a centralized location; correct?

21 **A.** Right. But they go in something the size of a small  
22 briefcase.

23 **Q.** Couldn't you just have more containers?

24 **A.** Sure. Sure.

25 **Q.** And, Mr. Bridges, would you agree that you could also

1 employ a central count in which ballots are scanned at the  
2 Board of Elections?

3 THE WITNESS: I'm getting dry. Could I get water?

4 THE COURT: It is right next to you.

5 THE WITNESS: Sorry about the squeak.

6 **A.** We could. We could.

7 Let me ask you a question. Are you talking about with the  
8 current OS system, or are you talking about with new system?

9 **Q.** (BY MR. POWERS) Mr. Bridges, right now I'm talking about  
10 the current OS system.

11 **A.** Okay.

12 **Q.** And just to make sure I have your testimony correct,  
13 you're testifying that Chatham County could employ a central  
14 count of counting paper ballots at the county boards of  
15 election office? That is what you said?

16 **A.** With the current OS system, if we were to central count  
17 scan, I really don't even know how to project how many scanning  
18 devices we would need to have. These scanners are not fast.  
19 So -- and you have to -- again, you have to segregate them  
20 according to -- when we are processing 10,000 ballots, it takes  
21 us probably, you know, 14 hours of processing to handle that.

22 If you magnify that -- let's say that we went to 50,000.  
23 You know, it is five times that. So the equipment we have  
24 would not be -- the equipment style that we currently use by  
25 itself with what we have would not be adequate for central

1 count scanning.

2 And there is nothing in the current system we have that  
3 would be construed as being a central count scanner -- high  
4 speed scanner that can handle all styles. That would be the  
5 type of thing you would want to employ if you did central count  
6 scanning. You need something fast. Something that can scan  
7 ballots. These are hand-fed a single ballot at a time.

8 **Q.** Mr. Bridges, is it fair to say that you would need far  
9 fewer optical scanners if Chatham County employed a central  
10 count?

11 **A.** I don't know if it is fair to say that. The answer I'm  
12 trying to give you is I really don't have any experience with  
13 trying to do central count scanning on that scale. And I don't  
14 believe the equipment we have would be adequate.

15 We would have to project -- we would have to project  
16 additional equipment. So we would have to have equipment for  
17 that.

18 Now, I guess to answer your question it would be probably  
19 less than if we had to have one in every voting precinct --

20 **Q.** Mr. Bridges, you have testified that --

21 **THE COURT:** All right. I think you can move on from  
22 this. I understand your point. I understand his point.

23 **Q. (BY MR. POWERS)** Mr. Bridges, you agree that every  
24 registered voter in Chatham County has the right to have their  
25 vote counted correctly, even if that costs the county more

1 money?

2 THE COURT: All right. That's rhetorical. Let's  
3 move on.

4 What do you need to get from him? I'm sure the  
5 witness is going to say yes.

6 **Q. (BY MR. POWERS)** Mr. Bridges, is it your testimony that  
7 you can conduct a reliable audit of the existing DRE machines?

8 MR. MILLER: Your Honor, objection. This is entirely  
9 outside the scope of direct and outside the scope of his  
10 declaration. There was no discussion about audits.

11 THE COURT: All right. Sustained.

12 MR. POWERS: No further questions.

13 EXAMINATION

14 BY THE COURT:

15 **Q.** So what was the last -- in the last election in Savannah,  
16 if it was comparable, what was the turnout?

17 **A.** The election parallel to the one that we're talking about  
18 for this year, it would have been four years ago. It would  
19 have been the same election, and I believe the gentleman that  
20 was just questioning me --

21 **Q.** Tell me the number again.

22 **A.** About like 35 percent I'm thinking.

23 **Q.** I'm just trying to understand the number of people  
24 voting -- what 35 percent -- I don't know what Savannah's  
25 population was offhand.

1 **A.** Savannah has probably about 105-, 110,000 registered  
2 voters.

3 **Q.** About --

4 **A.** 105-, 110,000. So if they had a 35 percent turnout, there  
5 would be like 35,000 voters.

6 Your Honor, the one point to bring here that really was  
7 not in this declaration or testimony is we have had a  
8 significant increase in population in the last four years. And  
9 last year we had an amazing increase in turnout over the same  
10 election four years earlier. 50 percent increase in turnout in  
11 2018 versus the same election four years earlier.

12 If we experience anything like that this year, we're going  
13 to have more turnout than we would anticipate. So in this  
14 business, you have to project high --

15 **Q.** I'm really not trying to quibble about the -- what the  
16 rate will be.

17 I mean, of course, people do turn out you would agree for  
18 a statewide or a presidential election more than for a city  
19 election? Isn't that your experience?

20 **A.** Yes, Your Honor. We all kind of have a rule of thumb.  
21 After doing it for several election cycles, you develop a rule  
22 of thumb.

23 **Q.** All right. What is the next largest city having an  
24 election other than Savannah in Chatham?

25 **A.** In this year, that would be Pooler.

1 Q. It would be --

2 A. Pooler, Georgia.

3 Q. Okay. What is their population?

4 A. Pooler currently has about 28,000 people. About 18 -- I  
5 think about 18,000 registered voters.

6 Q. That is P-O-O-L-E-R, right, for the reporter?

7 A. Yes, Your Honor.

8 Q. How many precincts are there in Savannah? And how many  
9 precincts are there in Pooler?

10 A. I believe when I looked at that number for somebody the  
11 other day Savannah has, I think, 54 voting precincts. Pooler  
12 currently has three. But we're negotiating with Pooler about  
13 adding two more. Likely they won't come until after this  
14 election though.

15 Q. I know that there is going to be ten locations that were  
16 supposed to be picked for a trial run on the new equipment that  
17 the state is going to be using this fall. At least I thought  
18 there were going to be.

19 Are you -- and maybe that is not -- that was my  
20 understanding. Were you asked to participate in that trial?

21 A. We were not asked. And at this late date, I would be --  
22 this short time frame with that magnitude, I would be worried  
23 about making the transition.

24 Had they told us earlier in the year and we started  
25 planning accordingly, then, you know, I would feel more

1 comfortable. But I don't know -- there are ten counties that  
2 were specified. I don't know which ten they are. But I think  
3 they were intended to be smaller so it is something you could  
4 get your arms around a little bit easier.

5 **Q.** And what if you were to do some type of trial run in one  
6 of your cities with a modified voting process?

7 **A.** The only difficulty that we would encounter is that we are  
8 running two countywide referendums, which would mean we would  
9 have to split the election between two different -- completely  
10 different systems.

11 And, you know, at this juncture, I have never really  
12 considered that. So I really can't speak to what it would take  
13 to do it. I would be a little afraid of anything like that  
14 that could cause problems.

15 If we weren't running a countywide election, then I think  
16 it would be feasible to take one of the smaller cities and do  
17 that in one of the smaller cities. But since we are running a  
18 county election and we run the whole election as a county  
19 election, we bring the municipalities under that umbrella for  
20 this.

21 **Q.** If you received any extra assistance from the state, would  
22 that make a difference?

23 **A.** I don't think we could do it if we didn't have a lot of  
24 extra assistance. I mean, it would -- because, again, we would  
25 be getting a system we don't know anything about at this point.

1 And we would have to be trained on it. We would have to train  
2 our support staff on it. We would have to train our poll staff  
3 on it.

4 And we are aware the state's going to a new system. So we  
5 are already planning to do voter outreach on top of what the  
6 state is going to do because the voters are not going to walk  
7 in to a different system and just adapt to it. If you put it  
8 out, there is going to be confusion. And when there is voter  
9 confusion, if you have staff inexperienced on top of it, then  
10 you have slower throughput in your polls and you have lines and  
11 people are just not happy if they have to stand in line.

12 We had some lines last year. We really don't want to have  
13 them again this year.

14 THE COURT: Anything else from this witness?

15 MR. MILLER: No, Your Honor.

16 MR. KNAPP: No, Your Honor.

17 THE COURT: May this witness drive home?

18 MR. KNAPP: Yes, Your Honor.

19 MR. MILLER: As long as y'all are good, yes.

20 THE COURT: All right. You are excused. Thank you  
21 very much.

22 THE WITNESS: Thank you, Your Honor.

23 MR. CROSS: Your Honor, on timing, we have us at  
24 about 20 minutes over. They have about two minutes to go on  
25 their clock. So I'm not sure how you want to --



1 THE COURT: Well, you're all obviously barreling  
2 towards being over time. I mean, they spent 40 minutes --  
3 deduct -- on this witness, which was -- who was estimated at 20  
4 minutes, taking my time off of it.

5 So I don't know if that is what the time frame that  
6 Ms. Cole agrees or that they agree is about there. But they  
7 are going to have to finish their case just like you had to  
8 finish.

9 MR. CROSS: We're going to do the two more witnesses?

10 THE COURT: Well, I guess the question is where are  
11 the witnesses -- the witnesses are -- were you still planning  
12 to call Ms. Doran?

13 MR. TYSON: Ms. Doran and Ms. Ledford are the two.

14 THE COURT: Where are they from?

15 MR. TYSON: Ms. Ledford is from Gwinnett County, and  
16 Ms. Doran is from Morgan County.

17 THE COURT: How far is Morgan?

18 MR. TYSON: Madison, Georgia.

19 MS. ANDERSON: She's about an hour away.

20 MR. CROSS: It is worth noting, Your Honor, they have  
21 both been deposed. Your Honor has testimony from each.

22 THE COURT: I understand.

23 MR. CROSS: Okay.

24 THE COURT: But they are entitled to put on their  
25 case.

1 MR. CROSS: Thank you, Your Honor.

2 THE COURT: I don't know whether it is going to be  
3 very different. And they can consider whether they want to  
4 rely on the depositions at all. But --

5 MR. TYSON: There are some different things we want  
6 to bring out with Ms. Ledford and Ms. Doran.

7 THE COURT: Let me talk about Dr. Shamos for a  
8 second. I didn't see anything that was -- just a second --  
9 that was some -- a big new issue. Obviously the state brought  
10 up the Senate report. But I don't know that that is -- I think  
11 that was almost more, you know, trying to make a point on  
12 cross-examination. And you have introduced it.

13 But I don't know -- it doesn't seem like -- I mean,  
14 that is not their bringing up something. That was your  
15 bringing up the report.

16 Is there something that you think either -- that you  
17 believe that was a new issue that was raised -- a new factual  
18 territory that was raised or expert opinion that was raised?

19 MR. RUSSO: Your Honor, at this juncture, he had a  
20 hard stop by 6:00. We asked him to kind of hang around by the  
21 phone just in case. And we've got his video prepared. So  
22 unless this rolls into Monday for some reason, we would be  
23 relying on that.

24 THE COURT: All right. So we have these two. And do  
25 you want to be able to show the video in open court? I mean, I

1 could watch it.

2 MR. RUSSO: Yes, ma'am. We can show the video in  
3 open court. We have got it prepared.

4 THE COURT: I understand that. Do you want to do  
5 that, or would you like to just go with your witnesses and then  
6 obviously --

7 MR. RUSSO: We would like to just go with the  
8 witnesses for now.

9 THE COURT: I can always see the video.

10 MR. RUSSO: Sure.

11 THE COURT: Play the video and accept -- and as would  
12 then get the transcript. But I would watch the video. He is  
13 an interesting witness as it is.

14 MR. RUSSO: It is 17 minutes. You know, at the end  
15 if --

16 THE COURT: That is fine.

17 MR. RUSSO: -- we can play it, then that is fine.

18 THE COURT: So it is those two witnesses.

19 Do you have any update -- not that I'm expecting it  
20 at this moment -- on the bond issue, whether you're going to be  
21 able to get that to me?

22 MR. BELINFANTE: I have got a document that I think  
23 is appropriate. I'm waiting to confirm that with the state.  
24 That is what I have not heard back from yet. I do have a call  
25 in to them as of earlier this afternoon.

1 THE COURT: All right. And I'm sorry to be a little  
2 scattered here. But did you give me the contracts and I just  
3 have misplaced them?

4 MR. TYSON: No, Your Honor. I have them ready for  
5 you.

6 THE COURT: Make sure you give them to somebody other  
7 than me at the moment. This is the standard recordkeeping in  
8 my office. Somebody else needs to hold it. All right.

9 If the Court believes it would be appropriate to put  
10 it in to the record or any of the parties, you are welcome to  
11 then do it after the fact. It is hard when no one has read it  
12 other than you.

13 MR. TYSON: Yes, Your Honor. I was just going to  
14 describe the documents for the record if that is clear.

15 THE COURT: That is fine.

16 MR. TYSON: There is a May 1st, 2019, letter from  
17 Secretary of State's office to PCC Technology notifying PCC  
18 that they are terminating Amendments 4 and 5 to the contract,  
19 which related to the hosting services provided by PCC. Those  
20 Amendments 4 and 5 follow the letter. And following that is a  
21 master customer agreement related to hosting that will allow  
22 the Secretary of State's office to host the eNet system on its  
23 own controlled system.

24 I did notice, Your Honor, that there is a reference  
25 to some other documents that go with the master customer

1 agreement. I do not have those, but I will try to get those as  
2 well.

3 THE COURT: All right. So what did you have them as  
4 the time? I'm sorry.

5 LAW CLERK COLE: I show the defendants have 45  
6 minutes remaining.

7 THE COURT: And the plaintiffs have exhausted their  
8 time?

9 LAW CLERK COLE: The plaintiffs are 23 minutes over  
10 time.

11 THE COURT: You had something different? What did  
12 you believe it was?

13 MS. CHAPPLE: We did, Your Honor. We thought that  
14 the defendants had three minutes left. Does that time include  
15 the 40 minutes of the last -- with the last witness?

16 LAW CLERK COLE: 35 minutes because we stopped the  
17 clock when she talks.

18 THE COURT: All right. Well, either way we're going  
19 to proceed because I'm not going to deprive anyone of -- it is  
20 too important of an issue. I think it has still been very  
21 useful and everyone understands.

22 Hopefully we can get this witness on and off in  
23 closer to the time anticipated. The only thing I have a  
24 concern about is whether you are thinking that you might need a  
25 rebuttal witness.

1 MR. CROSS: Rebuttal? Not from what we've seen so  
2 far.

3 MR. BROWN: We may have some rebuttal evidence on  
4 some of the pricing issues. But we could conceivably put that  
5 in in writing.

6 THE COURT: All right.

7 I wondered has the state -- has the state done  
8 anything with respect to the additional protections that were  
9 called for under House Bill 392 as to the voter protection --  
10 the voter registration system?

11 MR. RUSSO: Your Honor, we actually submitted as  
12 Exhibit 1 yesterday one of the state's rules that lays out some  
13 of those protections.

14 THE COURT: A new state rule?

15 MR. RUSSO: Yes, ma'am.

16 THE COURT: Are there any other -- and does that -- I  
17 have not looked at that yet. Are there any other rules that  
18 have been developed to implement the bill?

19 MR. RUSSO: No, ma'am. That is the rule that is --  
20 it is a fairly exhaustive rule though.

21 THE COURT: Okay. Are there any other rules that  
22 relate to audits or anything else like that?

23 MR. RUSSO: I'm not aware that they have a rule on  
24 audits yet. They may -- there is not a rule that has been  
25 published on audits. To the extent they are working on one,

1 that is not something I have spoken with them about.

2 THE COURT: All right. All right. Well, let's get  
3 the witness, and I'll come back to you.

4 I think the most hardworking court reporter in the  
5 world needs to have -- if you don't have any enchiladas, get  
6 some crackers. And others may need something like that too.  
7 So let's take a five-minute break before we begin this witness.

8 COURTROOM SECURITY OFFICER: All rise.

9 **(A brief break was taken at 6:18 P.M.)**

10 MR. TYSON: The defense would call Lynn Ledford.

11 COURTROOM DEPUTY CLERK: Please raise your right  
12 hand.

13 **(Witness sworn)**

14 COURTROOM DEPUTY CLERK: Please have a seat. Loudly  
15 and clearly state your full name, and please spell your last  
16 name for the record.

17 THE WITNESS: Lynn Ledford, L-E-D-F-O-R-D.

18 Whereupon,

19 LYNN LEDFORD,

20 after having been first duly sworn, testified as follows:

21 DIRECT EXAMINATION

22 BY MR. TYSON:

23 **Q.** Good afternoon or good evening, Ms. Ledford.

24 What is your current position?

25 **A.** I am the division director over elections in Gwinnett

1 County.

2 **Q.** And how long have you worked in the field of elections?

3 **A.** 32 years in October.

4 **Q.** And what types of election systems have you administered  
5 over those 32 years?

6 **A.** Punch card optical scan and DRE.

7 **Q.** Can you explain to the Court what the experience of  
8 Gwinnett County was or what your experience was --

9 THE COURT: Just before you get to that, to be a  
10 division director -- people have lots of different titles who  
11 are running elections. What does it mean to be a division  
12 director?

13 THE WITNESS: Well, actually I just got a promotion  
14 this year. I had been previously the election supervisor. So  
15 I was in charge of the day-to-day operations for the elections.  
16 And they created a division director position. And so I am  
17 the -- above that working in conjunction with the Elections  
18 Board to manage elections in Gwinnett County.

19 THE COURT: So is there anyone you report to other  
20 than the Board? Are you the top person now?

21 THE WITNESS: I have a department director.

22 THE COURT: You have a department director?

23 THE WITNESS: Yes.

24 THE COURT: Go ahead.

25 MR. TYSON: Thank you, Your Honor.



1 **Q. (BY MR. TYSON)** Can you explain to the Court what your  
2 experience was when Gwinnett County moved from a punch card  
3 system to a hand-marked paper ballot system?

4 **A.** Yes. It was a very detailed process. We had to do a lot  
5 of evaluation of our polling locations, our polling officials,  
6 as well as the voters. And we developed new training. We did  
7 a lot of outreach, and we also had to do a lot of staff  
8 training as well.

9 **Q.** What about when the county moved to DREs?

10 **A.** Very similar. It was on a much larger scale. The state  
11 was much more involved in that because that was when we started  
12 having to do statewide voter registration and election systems.  
13 And so they did a lot of --

14 THE COURT: Can you just speak a little slower?

15 THE WITNESS: Yes. Sorry.

16 **A.** They had to do a lot of the PSAs for that. The state also  
17 did a lot of voter education and outreach in addition to  
18 funding the counties to be able to do that as well.

19 **Q. (BY MR. TYSON)** Do you --

20 THE COURT: You were going from what to the DRE?

21 THE WITNESS: From optical scan to the DRE.

22 **Q. (BY MR. TYSON)** Do you remember approximately how long the  
23 period of time was to roll out DREs in Gwinnett County from  
24 optical scans?

25 **A.** I think it was -- if I remember correctly, it was about

1 six months.

2 **Q.** What has been your experience with educating voters about  
3 changes to an election system?

4 **A.** It does get very complicated. People tend to think that  
5 voting systems are intuitive, regardless of whether it is  
6 optical scan or DRE. And it has been our experience that it is  
7 not. So we try to ensure that we get enough voter education  
8 outreach and schedule those events so that the voters can come  
9 and actually touch the equipment prior to their first day of  
10 voting.

11 THE COURT: What do you encompass within optical  
12 scan? We just had somebody from Chatham County. And I want to  
13 make sure I'm making sure I understand what system you were  
14 using when you were using optical scan.

15 THE WITNESS: The ES&S system. It was just the  
16 bubbles -- round bubbles that you bubble in.

17 THE COURT: Then putting it through the scanner to  
18 count?

19 THE WITNESS: Yes, ma'am.

20 **Q. (BY MR. TYSON)** What has been your experience with  
21 educating poll workers about changes in an election system?

22 **A.** Well, that's a little more difficult. There is a lot of  
23 training that goes into that. Elections have become -- as we  
24 see here today, have become more and more complex. And when  
25 you start getting into the laws, the rules, and regulations of

1 what we have to teach them to try and ensure that they are  
2 putting forth that positive voting experience, in Gwinnett  
3 County we have online training, we have in-person training,  
4 then we also have labs where we set up specific scenarios so  
5 that the poll officials can see errors made by the voters, how  
6 to correct those errors, and how to work with the voters to  
7 correct any errors.

8 **Q.** In your experience in the process of moving to the new --  
9 well, let me ask you this first: You understand -- is the  
10 state moving to a new ballot marking system?

11 **A.** Yes, to my knowledge.

12 **Q.** In your experience once a vendor is selected for that new  
13 system, what types of things will Gwinnett County need to do to  
14 administer that?

15 **A.** Well, again, we will have to completely redo all of our  
16 training. Again, we do online, in-person, and labs. We will  
17 have to evaluate all of the polling locations to ensure that  
18 they can handle whatever electrical is needed for the new  
19 system. We will also have to look at space because I  
20 understand that this is more equipment than just the DREs as  
21 they stand now. And that is probably the two biggest things.

22 **Q.** What if an intermediate system was put in place where a  
23 different system had to be used for that one election while  
24 that process was going on?

25 **A.** Well, that would be really difficult because you have poll

1 officials -- a core group of poll officials and voters who are  
2 already trained how to use the current system. If you change  
3 it and then you turn around and change it again within a few  
4 months subsequent to each other, it could be very confusing.

5 It is confusing for the staff who are trying to -- from  
6 our end who are trying to administer the election. It is  
7 confusing for the poll officials because, you know, you are  
8 going from system to system. And then, again, it is confusing  
9 to the voters going from so many systems. And my fear would be  
10 that you would create some voter apathy with that.

11 **Q.** Have you had experience with paper ballots that could not  
12 be read by an optical scanner?

13 **A.** Yes. We have had actually several experiences with those.  
14 Prior to ballots being issued for absentee and for provisional,  
15 we do test decks. And while our test decks worked, the ballots  
16 themselves did not.

17 In 2008, we had to duplicate over 19,000 ballots and it  
18 took over 24 hours. In 2016 -- I'm sorry -- 2018, we had a  
19 similar situation. And the ballots could not be read. And we  
20 had to duplicate --

21 THE COURT: Couldn't be read by what?

22 THE WITNESS: By the optical scan readers.

23 THE COURT: The ones that you have, the AccuVote?

24 THE WITNESS: Yes, ma'am. Yes, ma'am. The current  
25 ones that we have.

1 THE COURT: But they are kind of old, aren't they?

2 THE WITNESS: I'm sorry?

3 THE COURT: They are quite old, aren't they?

4 THE WITNESS: They are. We have had those since  
5 2002. But it wasn't the equipment that wouldn't read. It was  
6 a problem with the ballots themselves. Because while we had  
7 tested them -- but by the time they got out into the field, you  
8 know, just a printing issue. When they came back, they were  
9 unable to be read.

10 And so in order for them to be read, we had to print  
11 another set of ballots and duplicate those original ballots the  
12 voters submitted onto a second set of ballots.

13 **Q. (BY MR. TYSON)** Can you briefly describe the process of  
14 ballot duplication?

15 **A.** You take -- for whatever reason, you have to mark why you  
16 are duplicating that ballot. And it takes three people. One  
17 person looks at the ballot. One person reads off the  
18 information from the ballot. And the third person is watching  
19 to ensure that those ballots -- those votes were transferred  
20 correctly from the original ballot to the duplicate ballot.

21 In our case, it took a little extra time because we have  
22 Spanish in Gwinnett. So we actually have a two-page ballot.

23 **Q.** If a precinct scanner was used and there was an error that  
24 printed a paper ballot from being counted, what would happen  
25 when the person tried to feed the ballot into the precinct

1 scanner?

2 **A.** Well, it could be one of several issues. The biggest one  
3 that we see is what you call shuffling. And when you put the  
4 -- I keep wanting to say punch card -- I apologize. When you  
5 put the optical scan in, the ballot will literally shuffle and  
6 you can't use that machine.

7 If there is a stray ballot mark on a ballot, the machine  
8 will not read it. You have to duplicate. If there is a  
9 overvote on the ballot, that is another reason that you would  
10 have to duplicate. Occasionally --

11 THE COURT: Let me just stop just for the purposes of  
12 efficiency. My understanding is that you are talking about  
13 completely still the experience you have had with these  
14 AccuVote optical scanners? Not with any more modern version  
15 like a 2020 or 2018? We haven't gotten to '20. Though I  
16 probably I have jumped that far.

17 THE WITNESS: Yes, you are correct. Yes, ma'am.

18 THE COURT: I don't think that's the proposal of any  
19 of the plaintiffs here to keep the AccuVote scanners. I think  
20 her experience with that might not be as helpful.

21 MR. TYSON: Certainly.

22 MR. BROWN: Your Honor, our injunction does not ask  
23 for the replacement of the scanners.

24 THE COURT: All right. So you want to use -- but the  
25 scanners here are just used only for counting. And your

1 proposal is for them to scan everything for counting purposes  
2 with these old machines?

3 MR. BROWN: Yes. And if they want to -- if the state  
4 wants to buy new ones, that's fine. The injunction just calls  
5 for the current AccuVote scanners.

6 THE COURT: All right. Just try to -- then it is a  
7 little more relevant. But let's just try to move through it.  
8 I get the point.

9 MR. TYSON: Yes. Yes. I'm trying to do that here.

10 **Q. (BY MR. TYSON)** Ms. Ledford, do disabled voters in  
11 Gwinnett County use paper ballots for any elections?

12 **A.** Yes.

13 **Q.** And what -- what is that process like for disabled voters  
14 using paper ballots?

15 **A.** It is usually much easier because that is -- the only  
16 paper ballots we do are absentee ballots. So generally they  
17 have someone to help them with that.

18 Our experience has been at the polls it can be difficult  
19 if they're having to do a provisional ballot due to low vision  
20 issues or physical issues that they can't actually bubble in.  
21 And that creates a problem from time to time.

22 **Q.** Do you recall hearing of a problem with Jasmine Clark's  
23 votes during last year's elections?

24 **A.** Yes, sir.

25 **Q.** What was that?

1     **A.**    If I remember correctly, she went to the poll to vote.  
2     And when they pulled her up on the ExpressPoll unit, they told  
3     her that she was registered in Dekalb or Cobb -- I can't  
4     remember -- another county other than Gwinnett County. They  
5     called our office.

6            And what we determined was the poll official had went out  
7     of what is called -- the ExpressPolls have three levels. You  
8     have in county -- I'm sorry -- you have precinct level, in  
9     county, and state.

10           The voter prior to her, they had had to look in the  
11    in-state option. They did not go back and change it to the  
12    in-precinct. So when they pulled up the Jasmine Clarks, there  
13    were several registered. The first Jasmine, whatever her  
14    middle name was, Clark was the person registered in a different  
15    county. The poll workers did not verify her information. So  
16    therefore they thought that was who she was. And so they were  
17    trying to send her to a different county when, in fact, she was  
18    in Gwinnett.

19           Once we got them on the phone, we realized what they had  
20    done. They were able to go back into their precinct count and  
21    issue her ballot and her vote.

22     **Q.**    So was there anything wrong with the voter registration  
23    records for Ms. Clark?

24     **A.**    No. It was a user error from the poll official side.

25     **Q.**    If this court were to order elections to be held on



1 hand-marked paper ballots, what are the steps Gwinnett County  
2 could take to implement that order?

3 **A.** Well, the first thing we would have to do is we would have  
4 to evaluate the polling locations. Our experience has been  
5 that it takes longer to vote a paper ballot than a touchscreen.  
6 So you would have to put out more voting booths -- just a plain  
7 voting booth.

8 Gwinnett County does not have enough to cover all of our  
9 polling locations. So we would have to do that. We would have  
10 to go through a procurement process for a ballot printer,  
11 possibly other items that would be needed within an optical  
12 scan system.

13 **Q.** Would you also have to evaluate your current precinct  
14 locations?

15 **A.** We would to determine what locations the voting is taking  
16 place and would it hold the number of units that we would  
17 anticipate be needed.

18 **Q.** Are there currently funds budgeted for Gwinnett County for  
19 that kind of implementation?

20 **A.** No.

21 **Q.** And I know you are not conducting -- well, are you  
22 conducting any city elections in November of 2019?

23 **A.** We are not.

24 **Q.** Based on your experience in election administration, do  
25 you believe if you were conducting elections in November 2019

1 there would be time to implement a hand-marked paper ballot  
2 solution?

3 **A.** I believe it probably could happen. But there would be  
4 significant problems with it. Again, you do have to take the  
5 time to be able to develop and train your poll officials, train  
6 your public, and train your staff on the procedures to use with  
7 that.

8 **Q.** Have you sought a Department of Homeland Security security  
9 assessment of your facility?

10 **A.** We did. In 2016.

11 **Q.** And have you heard back on that yet?

12 **A.** We have not.

13 **Q.** Can you briefly describe for the Court what takes place  
14 between the close of the election and the certification of  
15 ballots?

16 **A.** Well, for three days, we are examining provisional ballots  
17 making a determination whether those will be counted or not.  
18 Oftentimes that three days is spent duplicating those ballots.  
19 And oftentimes we are still doing that right up until the time  
20 that we certify the election.

21 **Q.** And so certification -- do you have time for other tasks  
22 while you are doing the certification process?

23 **A.** No, we do not. That is our goal from election day until  
24 that point is that information.

25 **Q.** If you were assigned to do an audit or some other function

1 precertification, would you need more time to complete that?

2 **A.** Yes.

3 MR. TYSON: That's all I have, Your Honor.

4 CROSS-EXAMINATION

5 BY MR. KNAPP:

6 **Q.** Ms. Ledford, just a few short questions. First, Gwinnett  
7 County has scheduled no elections for November of 2019?

8 **A.** Correct.

9 **Q.** So whatever happens here, it won't have any effect on  
10 Gwinnett County, will it?

11 **A.** No, sir.

12 **Q.** So, second, you have overseen three transitions already?

13 **A.** Yes, sir.

14 **Q.** From punch cards to optical scanners to DREs and preparing  
15 at least for a fourth one with whatever the state does;  
16 correct?

17 **A.** Correct.

18 **Q.** And you have handled them successfully, haven't you?

19 **A.** Yes, sir.

20 **Q.** And whatever the problems are, big or small, they are not  
21 enough to stop whatever system was in place at the time;  
22 correct?

23 **A.** I think that is dependent upon the time you have to  
24 prepare for it.

25 **Q.** Correct. You're a pro, and you have been doing this for

1 so long you know exactly how to do that, don't you?

2 **A.** Well, I would like to think I do, yes, sir.

3 MR. KNAPP: No further questions.

4 MR. POWERS: No questions from the Coalition  
5 plaintiffs.

6 EXAMINATION

7 BY THE COURT:

8 **Q.** I have a list of the locations that are having elections  
9 in Gwinnett County, and I just wanted you to clarify for me a  
10 few things.

11 Are you -- the county is not conducting any of these  
12 elections that are from -- that are occurring; is that right?

13 **A.** Yes, ma'am. Correct.

14 **Q.** So when, for instance, the City of Dacula is using an  
15 optical scan paper ballot, they are going to count that  
16 themselves; is that right?

17 **A.** Yes.

18 **Q.** And when the City of Duluth is using a DRE, they are going  
19 to be running that themselves? Are they getting the DRE  
20 machines loaned by the county?

21 **A.** Correct.

22 **Q.** But then are you as the county -- your office going to  
23 count -- run those, or they are going to --

24 **A.** No. They conduct their own elections.

25 **Q.** All right. And then there are a few places that are doing

1 it on paper hand count, City of Buford and City of Berkeley  
2 Lake and City of Grayson, as well as Loganville.

3 Do you know how they are doing that?

4 **A.** Yes. They will -- like, literally, just an  
5 eight-and-a-half-by-eleven sheet of paper. It has the  
6 candidates' names printed on it. And the voters will mark an X  
7 for whomever they wanted to vote for. And then they will hand  
8 count those at the end of the night.

9 **Q.** What is the biggest one of those places?

10 **A.** I apologize. Can you read them back off to me?

11 **Q.** The biggest -- I'm sorry. Sure. Loganville, Berkeley  
12 Lake, Buford, and Grayson.

13 **A.** Buford.

14 **Q.** What is its population?

15 **A.** I really don't know. But I just know of those four that  
16 is the biggest one.

17 **Q.** Have you ever had any complaints from those -- from  
18 citizens of those cities as to the paper hand --

19 **A.** We have not. But because we don't conduct their  
20 elections, they would not contact us.

21 **Q.** So those places like the City of Sugar Hill using optical  
22 scan paper ballot, they are getting somebody to fill out -- the  
23 citizen to fill out a paper ballot and then they will count  
24 them using your AccuVote scanners?

25 **A.** Yes, ma'am. That's correct.

1 THE COURT: Thank you.

2 Anything else? Is this witness excused?

3 MR. KNAPP: Nothing more, Your Honor. Thank you.

4 THE COURT: Thank you for your patience.

5 MR. TYSON: Your Honor, while we're changing  
6 witnesses, we had previously submitted with the spreadsheet the  
7 declarations of Mr. Elliott and Melissa Arnold related to the  
8 administration of city elections. I just wanted to bring those  
9 to your attention.

10 I have additional copies here if you would like them,  
11 or I can reference them by document number for you. But it  
12 contains some of the information about how cities conduct  
13 elections and timelines that would be relevant for the Court.

14 THE COURT: I have read it recently.

15 But, Ms. Cole, would it be helpful to have an extra  
16 copy?

17 LAW CLERK COLE: Sure.

18 THE COURT: Sure.

19 **(There was a brief pause in the proceedings.)**

20 THE COURT: While we're waiting, I just wanted to say  
21 to the members of the audience I do appreciate your longevity  
22 and your commitment to those of you who are here not because  
23 you are part of the legal teams. Legal teams are always  
24 appreciated. But I think it is kind of remarkable.

25 And whatever your position on this matter, you are

1 obviously very devoted to the exercise of the franchise and our  
2 democracy. And the Court greatly appreciates your interest.  
3 And it gives real vitality to the legal process and political  
4 process. And I just wanted to thank you as well.

5 Do you want to call the witness?

6 MS. ANDERSON: Oh, sorry. We call Jennifer Doran.

7 COURTROOM DEPUTY CLERK: Please raise your right  
8 hand.

9 **(Witness sworn)**

10 COURTROOM DEPUTY CLERK: Please have a seat. Loudly  
11 and clearly state your full name, and spell your last name for  
12 the record.

13 THE WITNESS: Jennifer Doran, D-O-R-A-N.

14 Whereupon,

15 JENNIFER DORAN,

16 after having been first duly sworn, testified as follows:

17 DIRECT EXAMINATION

18 BY MS. ANDERSON:

19 **Q.** Ms. Doran, where are you from?

20 **A.** Morgan County, Georgia.

21 **Q.** And what do you do?

22 **A.** I'm the elections supervisor for the Morgan County Board  
23 of Elections & Registration.

24 **Q.** And how long have you been the election supervisor?

25 **A.** A little over two years.

1 Q. And what are your duties as the election supervisor?

2 A. With being a small county, I pretty much do everything  
3 election-related. I qualify the local filing officer. I  
4 prepare elections. I do all the preparation from start to  
5 finish.

6 Q. And how many staff do you have?

7 A. Two, me and the deputy registrar.

8 Q. And you mentioned Morgan County is a small county. What  
9 is the population?

10 A. About 18,000.

11 Q. And do you know how many registered voters you have?

12 A. Just over 14,000.

13 Q. And how many municipalities are in Morgan County?

14 A. Four municipalities.

15 Q. And do you know if they are holding any elections this  
16 year?

17 A. Three of them are holding elections.

18 Q. Okay. And what is the typical voter turnout for those  
19 elections?

20 A. Truthfully, one municipality has never had an election in  
21 the last 20 years because they don't have enough qualified  
22 candidates. But they have 120 registered voters.

23 The other municipality is anywhere from 4- to 600. And  
24 Madison, depending on who is on the ballot, is anywhere from 5-  
25 to 1500.



1 Q. And what are your budgets for the elections for your  
2 fiscal year?

3 A. Our new fiscal year '20 is \$30,000. And that excludes  
4 salaries for staff and poll workers.

5 Q. And what is your fiscal year?

6 A. July 1st, '19, through June 30, '20.

7 Q. So this would include the presidential primary and the May  
8 general elections?

9 A. Correct.

10 Q. And is this a similar budget to what you've had in a kind  
11 of -- well, I guess it is -- is this a similar budget to last  
12 year?

13 A. It is.

14 Q. And how much -- how many funds remained from the budget  
15 last year?

16 A. None.

17 Q. And does this budget include running the municipal  
18 elections in November?

19 A. It does.

20 Q. I guess I should have backed up. I wanted to confirm that  
21 Morgan County does run the municipal elections.

22 A. We do. We handle all of the elections.

23 Q. What is included when you run the elections for Morgan  
24 County? What does Morgan County have to pay for its cost?

25 A. For municipal elections?

1 Q. Correct, municipal elections.

2 A. We have an IGA with the municipalities that they reimburse  
3 us for actual costs. But we do the notices of election -- any  
4 notices that have to be done legally, the poll worker training,  
5 and setting up the polls -- I'm nervous. Hang on -- and all of  
6 the costs that are incurred. And then the municipalities  
7 reimburse us.

8 Q. If Morgan County would have to switch to a new system, for  
9 example, the paper ballot scanning systems, do you have an  
10 understanding of who would pay for those new machines for the  
11 municipal elections?

12 A. If we moved to the paper ballot?

13 Q. Yes.

14 A. My understanding is that we would pay for it -- the county  
15 would.

16 Q. If you had to pay for the new paper ballot system, would  
17 you have enough funds in your budget to cover the costs?

18 A. We operate at a very lean budget, \$30,000. We would have  
19 to get optical scanners. If all of the municipalities held  
20 elections, we would need about four OS units with ballot boxes,  
21 which would be about \$5000, which we have not budgeted for.

22 Q. And you said it would be about \$5000. What is the basis  
23 for that calculation?

24 A. Our board had looked at the feasibility of moving to paper  
25 ballots back in, I think, August or September of 2018. And at

1 the time, the board had asked me to look at budget numbers.  
2 And I contacted ES&S, who is our vendor. And that would be the  
3 OS unit and the ballot box -- that was the quote I was given,  
4 about \$1300 per unit.

5 **Q.** And would that be -- what type of machine would that be?  
6 Would it be similar to the system you have now or something  
7 different?

8 **A.** It would be the current system that we use plus a ballot  
9 box that -- we don't use ballot boxes right now.

10 **Q.** Do you know how old the current system is that you use?

11 **A.** Pretty old. I don't know exactly when they have been  
12 purchased. But --

13 **Q.** What would you have to do to make sure you had enough  
14 funds to cover for the fiscal year if you had to go and buy  
15 these machines?

16 **A.** I would have to go to the county manager who would have to  
17 get approval from the county board of commissioners to amend  
18 our budget because \$5000 -- there is -- we don't have a lot of  
19 wiggle room. So we would have to go through the commissioners  
20 to get a budget amendment.

21 **Q.** Okay. Would the purchase of machines be your only cost if  
22 you had to move to the new paper -- to a new paper ballot  
23 system?

24 **A.** Well, the cost of the paper ballots. We order -- in  
25 municipalities, we don't have a lot of paper ballots for

1 absentee and provisional. If we had to move to paper ballots,  
2 the cost would -- you know, it would be a few hundred dollars  
3 for the -- for one times however many elections we had.

4 **Q.** Would there be any other costs involved?

5 **A.** Well, we would -- if we were doing paper ballots,  
6 depending on how it was set up, we would probably have a little  
7 different setup in staff, which would be man hours that we  
8 would be paying.

9 **Q.** So the \$5000 would just be the machines, but Morgan County  
10 would likely incur additional costs that would come out of your  
11 30,000-dollar budget; is that correct?

12 **A.** Yes, it would.

13 **Q.** When would you need to know if you were going to move to a  
14 new system in order to be prepared for the November 2019  
15 election?

16 **A.** We would have to have everything to our office by early  
17 October at the absolute latest. And the turnaround time at the  
18 Secretary of State -- we would have to purchase it. And then  
19 it goes to the Secretary of State for certification and  
20 acceptance testing.

21 The last time we bought equipment was about two months.  
22 So to have it late September so that we could do the testing on  
23 it to be ready for early voting, it would be early -- really  
24 early August.

25 **Q.** You mentioned testing. You would still have to perform

1 testing on the scanners? Not the same testing as a DRE. But  
2 you would have to, in fact, perform some type of testing on the  
3 optical scanners?

4 **A.** Yes.

5 MS. ANDERSON: Your Honor, I'm just going to kind of  
6 jump around just given the time.

7 **Q.** (BY MS. ANDERSON) What is the security surrounding the  
8 county's GEMS server?

9 **A.** It is locked in my office with only me and the department  
10 head of maintenance having access to it. It has got a dead  
11 bolt on it for more security.

12 **Q.** And is it connected to the internet?

13 **A.** It is not.

14 **Q.** Is it connected to a phone line?

15 **A.** It is not.

16 **Q.** And speaking of -- I think you just -- we were talking  
17 about security.

18 Has Morgan County done anything recently to evaluate the  
19 security -- the physical securities surrounding its election  
20 system or its DRE system?

21 **A.** Yes. The Department of Homeland Security had offered a  
22 physical assessment, and we took advantage of that offer. They  
23 came out and did an assessment for us.

24 **Q.** Okay. And did they -- did the DHS provide any options to  
25 you guys about -- regarding security?

1     **A.**    They did.

2     **Q.**    And have you implemented some of those options?

3     **A.**    We have.

4     **Q.**    And you do not -- do you feel comfortable sharing those  
5 options right now?

6     **A.**    The document listing all the options and the detail of the  
7 assessment was designated as a critical infrastructure  
8 document.  So it is not open to public disclosure.

9     **Q.**    Moving to, I guess, election night when elections close,  
10 how are memory cards transferred -- going back to your current  
11 system, the DRE system, how are memory cards transferred from  
12 the precinct to the county for tabulation purposes?

13    **A.**    We have a poll -- the poll manager and one of the  
14 assistant poll managers from each precinct carry it in on  
15 election night from the precinct to our office.  We have board  
16 members that receive it, along with all the other -- or all the  
17 other stuff that they bring in.

18    **Q.**    And what are those memory cards carried in?

19    **A.**    They are carried in a manager's bag.

20    **Q.**    And then how do you -- I guess how do you send your  
21 official election results back to the Secretary of State after  
22 you have tabulated those results?

23    **A.**    On election night, which are not the official results, we  
24 upload them to --

25    **Q.**    I'm sorry.  I was talking specifically about the official

1 results. How do you get your official election results to the  
2 Secretary of State's office?

3 **A.** Well, we do an upload to ENR as the official. Then as  
4 part of our packet that we send back to the Secretary of State,  
5 we do a copy of the GEMS database.

6 **Q.** And the GEMS database, how is that transferred back to the  
7 Secretary of State's office?

8 **A.** We meet with -- the Georgia State Patrol and the  
9 investigator from the State Election Board comes and picks it  
10 up.

11 THE COURT: I think I missed something. So you went  
12 back to -- you said we do an upload to what?

13 THE WITNESS: The ENR, the Election Night Reporting  
14 website.

15 THE COURT: That is what you meant by ENR?

16 THE WITNESS: I'm sorry. Yes.

17 THE COURT: And you do an upload from what?

18 THE WITNESS: From the GEMS server.

19 THE COURT: And is that by internet then?

20 THE WITNESS: The Secretary of State provides us with  
21 a lockable USB drive. We insert it into the GEMS server,  
22 upload the results, lock it so that it can only transmit out.  
23 Then we do hook it up to my computer and send it over through  
24 the internet.

25 THE COURT: All right. Is there anything else that

1 you in a similar fashion when you communicate by internet --  
2 by -- via the internet like that? Because I know that you have  
3 some things that you do by having them hand-delivered. But  
4 what else do you do like that that is protocol for you to --  
5 even if it is to lock it that you put it -- it is in your  
6 computer and then you send it up to the central office?

7 THE WITNESS: We do have an absentee bulk update that  
8 is done the Friday night or Saturday morning of -- after early  
9 voting has ended. And that comes across over the FTP server.

10 THE COURT: All right.

11 **Q. (BY MS. ANDERSON)** How many optical scanners does Morgan  
12 County currently have?

13 **A.** We have two.

14 **Q.** And how many would you need if you were to go to an entire  
15 paper ballot system?

16 **A.** We would need the two that we already have. Then we would  
17 need seven for the precincts. We have seven county precincts  
18 and then one for early voting. And then we would need at least  
19 a small handful as backup in case any of them failed.

20 **Q.** I guess I wasn't clear. Would you need this many for --  
21 would you need that many scanners for the November 2019  
22 election?

23 **A.** I'm sorry. No. We would need an additional four  
24 scanners.

25 **Q.** I wanted to back up to something that you said about



1 absentee ballots. Do you -- does the absentee ballots use GEMS  
2 at all?

3 **A.** We do L&A testing on the OS -- on the optical scan unit  
4 through the GEMS server. We upload the test results to make  
5 sure everything is functioning correctly. And then once we run  
6 the ballots through that optical scan unit, we hook it up to  
7 the GEMS server to upload the results to the GEMS server.

8 **Q.** For the absentee ballots?

9 **A.** Correct.

10 **Q.** Could you borrow any optical scanners from a neighboring  
11 county?

12 **A.** For this election, I know that most neighboring counties  
13 are having their own elections. So they would be using their  
14 own units.

15 **Q.** Would it be feasible for you to engage in a hand count  
16 paper ballot for the 2019 elections?

17 **A.** It would increase our staff hours fairly significantly  
18 because the OS unit is not fast. But it is certainly much  
19 faster than hand counting them. It is feasible. But it would  
20 take -- the results would be much slower than if we did it  
21 through a unit.

22 **Q.** And are those staff individuals -- are they salaried or  
23 hourly?

24 **A.** They are all hourly.

25 **Q.** Would the county have to incur overtime costs for counting

1 if you guys moved to a paper ballot system?

2 **A.** Yes, they would.

3 **Q.** Do you as the election supervisor of Morgan County have  
4 any concerns about moving to a paper ballot system for the  
5 November 2019 elections?

6 **A.** I guess getting the equipment on time if we had to do  
7 that. I had already sent a proposed budget to the  
8 municipalities on what the election would cost based on our  
9 current system.

10 If we had to purchase more paper ballots to cover their  
11 election, their cost would go up. And, you know, we're a very  
12 small county. So we're talking about a 4- to 6000-dollar  
13 budget. When you add 5- to \$600, that is a fairly significant  
14 number. I mean, in the grand scheme, I know it is not. But it  
15 is on a local level.

16 **Q.** And is it your understanding -- is it your understanding  
17 if you used the paper ballot system for the November 2019  
18 election you would use it for the upcoming presidential primary  
19 or the May 2020 elections?

20 **A.** My understanding is that the Secretary of State is --  
21 we're moving to a new ballot marking device system so that we  
22 would not be doing paper ballots.

23 **Q.** And just so I'm clear, so Morgan County -- well, never  
24 mind.

25 I wanted to go back to the absentee bulk files you were

1     referencing earlier. Does the absentee bulk update file you  
2     receive on the FTP site ever go into the GEMS server?

3     **A.**    No. It goes into the ExpressPolls.

4                 MS. ANDERSON: That is all I have.

5                                 CROSS-EXAMINATION

6     BY MR. SPARKS:

7     **Q.**    Ms. Doran, good evening. Adam Sparks for the Curling  
8     plaintiffs. We met briefly before your deposition. Do you  
9     remember?

10    **A.**    Yes, I do.

11    **Q.**    Good to see you again. And thank you for your patience.

12    **A.**    Thank you.

13    **Q.**    I have just a few questions for you.

14    **A.**    Okay.

15    **Q.**    You mentioned that you had conducted a -- I believe the  
16    word was investigation or cost analysis of some sort for your  
17    board concerning hand-marked paper ballots; is that right?

18    **A.**    I did.

19    **Q.**    As part of that analysis, you found that paper ballots  
20    could be ordered for approximately 40 cents per ballot; is that  
21    right?

22    **A.**    Yes, sir.

23    **Q.**    And if I understand your deposition testimony correctly,  
24    you also asked your current vendor if you could get a lower  
25    rate if you ordered more ballots at volume? Do you remember

1 that?

2 **A.** I do.

3 **Q.** All right. And he did not refuse that question; correct?

4 **A.** As I recall, he followed up the email with a phone call  
5 and discussed that he was capable of doing the number -- the  
6 volume. But I don't remember if he ever answered, and I'm  
7 pretty sure he did not.

8 **Q.** As part of this cost analysis, you at some point were  
9 directed by your board to ask the Secretary of State whether  
10 Morgan County could conduct elections using hand-marked paper  
11 ballots; correct?

12 **A.** Correct.

13 **Q.** And they told you no; right?

14 **A.** Yes, they did.

15 **Q.** All right. And you understand that to apply to all  
16 elections that Morgan County conducts; correct?

17 **A.** Correct.

18 **Q.** You mentioned the DHS physical assessment for --

19 **(There was a brief pause in the proceedings.)**

20 **Q.** **(BY MR. SPARKS)** You mentioned a DHS physical assessment  
21 that Morgan County accepted from the federal government;  
22 correct?

23 **A.** Correct.

24 **Q.** And that assessment did not include any recommendations or  
25 guidance concerning cybersecurity; correct?

1 **A.** No. It was purely a physical assessment.

2 **Q.** Okay. Forgive me. I'm skipping along, as well, given the  
3 hour.

4 Are you testifying that you take files from an FTP site  
5 that is internet facing and put them into ExpressPoll?

6 **A.** Correct.

7 **Q.** You testified earlier that there is a USB stick that you  
8 move back and forth between the county level GEMS server and  
9 your internet-facing computer; is that right?

10 **A.** Yes. But it is locked when it is in my work computer.

11 **Q.** Yes. I understand.

12 You have described a number of policies and procedures  
13 concerning the administration of elections tonight; correct?

14 **A.** Yes.

15 **Q.** I'm sorry?

16 **A.** Yes.

17 **Q.** And if this Court orders relief in this case concerning  
18 how ballots are cast and counted, you will cause Morgan County  
19 elections to follow that order; correct?

20 **A.** Yes.

21 MR. SPARKS: No further questions at this time.

22 Thank you.

23 CROSS-EXAMINATION

24 BY MR. BROWN:

25 **Q.** Hi, Ms. Doran. Good to see you again. Bruce Brown.

1           You testified that you considered for the board, I think,  
2 switching to paper ballots and looked at both sides of the  
3 issue; correct?

4     **A.**    Yes, sir.

5     **Q.**    And you could see the argument both ways?

6     **A.**    I do.

7     **Q.**    And you saw the advantage of paper ballots; correct?

8           There were some advantages of paper ballots and some advantages  
9 for staying the way it was?

10    **A.**    Yes.

11    **Q.**    And I believe your conclusion was that on balance you were  
12 not in favor of moving to paper ballots for one election and  
13 then starting a new voting equipment system the next year or  
14 the next quarter; is that fair to say?

15    **A.**    Yes, sir.

16    **Q.**    And -- but that assessment was based upon your  
17 perception -- your belief that the DREs are secure; is that  
18 right?

19    **A.**    Yes, sir.

20    **Q.**    And if your belief or your assessment of the security of  
21 the DREs changed, you could very well change your judgment on  
22 whether or not hand-marked paper ballots are better to go with  
23 right now; right?

24    **A.**    Yes, sir.

25    **Q.**    Okay. And to get back to the different scanning options

1 for the plaintiff Coalition's proposal -- and just to give you  
2 some context for this, the plaintiffs -- the Coalition  
3 plaintiffs propose that you keep the GEMS, keep the AccuVote  
4 scanners, and the only thing you do is take out the DRE  
5 machines and put in hand-marked paper ballots. That is the  
6 only change.

7 Are you with me?

8 **A.** Yes, sir.

9 **Q.** And then on the scanners, you could do three -- one of  
10 three different things. You could either not have them and do  
11 hand count.

12 You follow me?

13 **A.** Yes.

14 **Q.** You could do a precinct scanner, or you could do a central  
15 count.

16 Do you follow me?

17 **A.** Yes.

18 **Q.** And your -- your calculation of the cost increased if you  
19 went to hand-marked paper ballots obviously wasn't for hand  
20 counting them because you didn't calculate the extra labor  
21 hours for that; right? You didn't --

22 **A.** Correct.

23 **Q.** You didn't price that out; fair enough?

24 **A.** Correct.

25 **Q.** But yours was the option of having precinct count, one in

1 each precinct; is that right?

2 **A.** Yes, it is.

3 **Q.** But you could -- if there were a budgetary consideration,  
4 you could choose to have a central count and you would not need  
5 another scanner for the November 2019 elections; is that right?

6 **A.** The procedure right now is when we are doing testing on  
7 the OS units, once we have completed testing, we actually lock  
8 the memory card in. So that scanner is set just for -- that is  
9 why we have two. We have one labeled as absentee and one as  
10 provisional.

11 If the procedures changed where we could pull out the  
12 memory card and stick it in the next one to do, you know,  
13 central counting and absentee on the same one, it is possible  
14 we could use what we have now.

15 **Q.** Okay. And many steps in the voting process -- the change  
16 that I have described, many steps in the voting process would  
17 remain the same; right?

18 **A.** On -- you are talking about election day, the process from  
19 the --

20 **Q.** Yes.

21 **A.** I would say about half would stay the same.

22 **Q.** Well, all the ballot building and the ballot preparation  
23 would be identical; correct?

24 **A.** Correct.

25 **Q.** And so there would be no change there? It would just be



1 increase in quantity of ballots; right?

2 **A.** Right.

3 **Q.** And then the check-in would be a little bit different?

4 **A.** It would be.

5 **Q.** Okay. You don't get a memory card? You get a ballot?

6 **A.** Right.

7 **Q.** Okay. And if Morgan County switched to paper ballots, I  
8 believe you testified that you could operate the election with  
9 the same staff that you have now; correct?

10 **A.** Yes.

11 MR. BROWN: Okay. Thank you very much.

12 EXAMINATION

13 BY THE COURT:

14 **Q.** Let me get some clarification. You said earlier that you  
15 do L&A testing on the optical scanner unit from the GEMS  
16 server; is that right?

17 **A.** Yes.

18 **Q.** And that you upload the test results to make sure  
19 everything is functioning correctly?

20 **A.** Yes, ma'am.

21 **Q.** And then once you run the ballots through the optical scan  
22 unit, you hook it up to the GEMS server to upload the results  
23 to the GEMS server?

24 **A.** Correct.

25 **Q.** And that was in response to a question do you use the

1 absentee ballots -- use a GEMS at all. And that is the way I  
2 understood it.

3 But then you also mentioned later on in response to a  
4 question of state's counsel, well, that you -- you were talking  
5 about it being up to ExpressPoll. So I'm a little confused.

6 Did I get my description of your -- was my description of  
7 your testimony correct? That the whole -- that you go through  
8 the L&A process and -- I'm sorry.

9 So I asked you once you run the ballots through the  
10 optical scan unit you hook it up to the GEMS server to upload  
11 the results to the GEMS server and you said correct.

12 **A.** Correct.

13 **Q.** All right. And you upload that through the internet; is  
14 that right?

15 **A.** No, ma'am. What you were talking about, the update on the  
16 ExpressPoll, at the end of early voting, we have a list of all  
17 of our voters. Through Election Net, we update who early  
18 voted. That absentee bulk update is what we get through the  
19 FTP server on my computer. That is what is updated to -- or  
20 uploaded to ExpressPoll.

21 **Q.** So what is uploaded to GEMS that you were talking about  
22 when I was speaking with you about it?

23 **A.** Once we do the testing on the OS units and the TS units,  
24 we upload the results on there just to confirm that they are --  
25 they are programmed and that they are transmitting the results

1 correctly.

2 **Q.** All right. So I'm sorry for my lack of knowledge here.  
3 What type of information are you exactly transmitting through  
4 the internet at that point to GEMS?

5 **A.** We're not -- nothing is being transmitted from the --  
6 there are two different processes. The bulk update that we get  
7 through the FTP is not part of the L&A process at all.

8 **Q.** Right.

9 **A.** What we're doing with uploading the memory cards and the  
10 OS units to GEMS is making sure that the OS scanners read the  
11 test ballots correctly. That is part of our testing as we have  
12 test ballots that are marked in different ways so that we make  
13 sure that they are being counted correctly. We upload it to  
14 GEMS, print out a summary report that shows what the OS unit is  
15 saying, we compare it to make sure that that is correct.

16 **Q.** All right.

17 **A.** Once -- the Secretary of State right before an election,  
18 they like for us to upload through the lockable USB from the  
19 GEMS our L&A GEMS database file, which shows that we've  
20 partially voted on the machines just to show that they work.  
21 And then that gets uploaded through the ENR website.

22 THE COURT: Okay.

23 REDIRECT EXAMINATION

24 BY MS. ANDERSON:

25 **Q.** I don't know if -- are you still -- I think there is a

1 little bit of confusion about the absentee bulk update and  
2 absentee ballots.

3 **A.** Right. The absentee bulk update are basically the early  
4 voters and the people who have submitted absentee ballot  
5 applications that are marked in our system -- the voter  
6 registration system as either -- it is an absentee -- whether  
7 you early vote or we've issued you an absentee ballot. That  
8 way when you do the bulk update, if someone shows up on  
9 election day and we have submitted -- we've sent them a ballot  
10 or they early voted, the poll manager or the poll worker sees  
11 that the person has already voted by absentee.

12 **Q.** That is on the e-pollbook or the ExpressPoll? I'm sorry.

13 **A.** Yes, it is.

14 **Q.** And the bulk update, just so I'm clear, those are not  
15 actual absentee ballots -- that absentee bulk update file?

16 **A.** No. They are -- they are just records saying that this  
17 voter has already voted absentee, whether in person or been  
18 issued a ballot. It just shows they have -- yes, they have  
19 voted or, no, they have not voted.

20 MS. ANDERSON: Thank you.

21 MR. SPARKS: Just one more point of clarification.

22 RE-CROSS-EXAMINATION

23 BY MR. SPARKS:

24 **Q.** You do use a USB stick to copy files from the GEMS server  
25 to your office computer; is that correct?

1     **A.**     Correct.

2     **Q.**     Does your computer have end point protection installed on  
3     it?

4     **A.**     It does.

5     **Q.**     It has an Albert sensor installed on it?

6     **A.**     I don't know what that is. I'm sorry. My IT handles all  
7     that. I know that he has all of the stuff that we need on  
8     there. But --

9     **Q.**     But sitting here today, you don't know whether Albert  
10    sensors are installed on your office computer?

11    **A.**     No.

12             MR. SPARKS: Thank you.

13             MS. ANDERSON: She doesn't know what it was. But --

14             THE COURT: All right. So is this witness excused?

15             MS. ANDERSON: Yes, Your Honor.

16             THE COURT: Thank you very much for staying so late.  
17    And thank you for your work.

18             Are there any other witnesses?

19             MR. RUSSO: No, Your Honor. All we have left is  
20    Dr. Shamos. If you would like to end with a short video, we  
21    are happy to play it in court or -- it is about 17 minutes. Or  
22    we're happy to -- well --

23             MR. TYSON: It is not a lockable USB drive, but I can  
24    give you a USB drive.

25             MR. KNAPP: She's not allowed to take it.

1           MR. RUSSO: It has been on an internet-facing  
2 computer.

3           MR. CROSS: Fortunately Your Honor won't be plugging  
4 anything into the GEMS server. So we should be all right.

5           We can do this all day, Your Honor.

6           THE COURT: Do you have any objection to our seeing  
7 it outside -- you have seen it? You know what the 17 minutes  
8 are? Do you have the --

9           MR. CROSS: We have not seen it.

10          THE COURT: Have you seen the text?

11          MR. CROSS: No.

12          MR. RUSSO: We were just going to play it and provide  
13 everybody with a copy.

14          THE COURT: Do you have a copy of the transcript  
15 right now?

16          MR. RUSSO: Yes. Yes, we do.

17          THE COURT: Do you want to see sort of generally what  
18 he is pulling up or not, or do you --

19          MR. RUSSO: We were just following kind of how they  
20 did it yesterday. We didn't have a transcript or anything of  
21 theirs either.

22          THE COURT: I understand. I just want to make sure  
23 that no one is going to say I need some other portion. And  
24 that is fine. If you do, then you can identify it.

25          MR. CROSS: Your Honor, I don't recall any objections

1 during -- does this include some of your redirect I assume?

2 MR. RUSSO: Yes.

3 MR. CROSS: Other than the objections that we  
4 asserted during the deposition itself, because I think there  
5 may have been some leading or other questions, I don't have any  
6 objection to this. Whatever objection we had I think we  
7 asserted at the moment. And Your Honor can give it whatever  
8 weight.

9 MR. BROWN: No objection, Your Honor.

10 THE COURT: All right. Is there anything else that  
11 you want to provide before you close? I'm going to consider  
12 the record to include --

13 MR. RUSSO: We'll give you the video. It is much  
14 more interesting than the transcript.

15 THE COURT: Did we give an exhibit number to the  
16 other transcript or not?

17 MR. CROSS: Ours was 12. I think ours was  
18 Exhibit 12.

19 **(There was a brief pause in the proceedings.)**

20 THE COURT: I think that -- because I've marked some  
21 of the exhibits, you are going to end up having to work with  
22 Mr. Martin to get a complete set of your exhibits in with  
23 actual stickers. I know that the state's provided more. But  
24 we just have one copy of many things.

25 MR. KNAPP: We'll get it worked out.

1 THE COURT: I don't know -- I assume that counsel who  
2 are not local are returning to Washington and any other place  
3 that they are residing this weekend? Maybe they are not.

4 MS. CHAPPLE: We are, Your Honor. We have been  
5 moving our flights back. So right now it is at 10:00 P.M.

6 MR. CROSS: We have all the time in the world, Your  
7 Honor.

8 MS. CHAPPLE: Yes. It is not a problem.

9 THE COURT: I mean, simply because you are here and I  
10 really don't want to get you to have to come again even as  
11 exhausted as everyone may be, if there is -- I had said you  
12 could speak for 20 minutes if there is something you really  
13 want to address now. I can certainly do it by phone as well.  
14 But I know that is often not what -- it has its problems.

15 MR. CROSS: Given it has been two days and the scope  
16 of evidence, I think brief closings would be useful to hit the  
17 highlights for Your Honor, even though we do recognize, as you  
18 said, you are the fact queen.

19 THE COURT: That doesn't mean -- this is a highly  
20 technical area. And I keep on asking some of the same  
21 questions again so obviously -- just because I'm interested in  
22 facts doesn't mean that I master them.

23 MR. CROSS: So we are happy to stay as long as Your  
24 Honor is willing to stay.

25 THE COURT: Let me talk with my staff and make sure



1 that everyone can manage that.

2 **(There was a brief pause in the proceedings.)**

3 THE COURT: How about you, Mr. Russo?

4 MR. RUSSO: We can stay, Your Honor, as long as you  
5 would like. I'm happy to come back on Monday or do it by phone  
6 or whatever you want.

7 THE COURT: All right. Well, let's stay for 15  
8 minutes and see if we can make any use of this. And if not, if  
9 I find it just sort of -- I would really urge you not to go  
10 over and over some of the evidence. If there is something that  
11 you want to really bring to my attention that you see as a  
12 result of the evidence and the law -- but I have read your  
13 briefs, and I'm going to obviously have to read everything  
14 again.

15 And, in fact, it is sufficiently technical that I'm  
16 sort of interested in Ms. Welch not having to do a hearing  
17 tomorrow so that she might have a chance -- or Monday so that  
18 she might have a chance of actually getting me a transcript.

19 Let's go ahead.

20 MR. RUSSO: Your Honor, one quick question. Do we  
21 have a time that we're both doing this in or that we would be  
22 held to?

23 MR. BROWN: 10 minutes. 20 minutes for us and 20  
24 minutes for them.

25 MR. RUSSO: 10, 10; 15, 5. 20 minutes total. How

1 does that sound? Break it up however you would like.

2 MR. BROWN: Do I have ten or five?

3 MR. CROSS: Five.

4 MR. RUSSO: That means it will be 15, Bruce.

5 MR. CROSS: You were asking me.

6 THE COURT: There is somebody back there who has  
7 something to say also.

8 CLOSING ARGUMENT

9 MR. BROWN: Your Honor, Bruce Brown. Thank you for  
10 the opportunity to close.

11 Our position is that although there is a lot of  
12 technical matters that lie in the weeds is that to decide this  
13 case does not require a heavy lift on the facts at all. And  
14 the reason for that is in your 2018 opinion you said very  
15 clearly that the state could go in one or two directions. It  
16 could either build an auditable and reliable system or it was  
17 not going to be treated easily by the courts. It can go one  
18 way or the other.

19 The one option that they took was not one that was  
20 left open to that -- to them. And that was to leave the system  
21 exactly the same and, in fact, as we have learned over the last  
22 two days, deteriorates substantially from where it was in 2018.

23 The other thing about your order, Your Honor, is that  
24 you gave the defendants explicit instructions on what they  
25 needed to do. And instead of following those instructions,

1 they did exactly what you didn't tell them. So, for example,  
2 Ms. Payton, if you compared what you said the state needed to  
3 do, it would define what they carved out of her scope of work.  
4 Look at GEMS, look at the printers, look at this, look at this.  
5 That was exactly what she was told not to look at.

6           You heard all of the testimony. And still today  
7 there is nobody from the state who has done any assessment of  
8 the 2016 intrusion. None. Zero evidence of that. And that is  
9 why you almost granted the motion last time. And you said it  
10 right there. You said -- and you really hit them hard by  
11 saying you hadn't back a year ago assessed the impact of it.  
12 And they still haven't done it. They still haven't done it.

13           So, you know, we start with the idea that these  
14 systems right out of the box are -- I think a strong case could  
15 be made that right out of the box they are unconstitutional  
16 because there is no backup.

17           Then we have all of the problems that Georgia has had  
18 leading up to 2018. And then it has only gotten worse. One of  
19 the problems with the way -- and this may be the way that we  
20 framed it poorly is that we get into the balancing of the  
21 equities obscures what is at stake. And that is voters have an  
22 absolute right to vote. And if the state puts a burden on  
23 that, then we win.

24           It is not -- it is not if the state puts a burden on  
25 that unreasonably, which they clearly have done, we have to

1 prove that their fix is feasible or cost effective or not in  
2 some way burdensome. That is not the law. The law is very  
3 clear is that the -- we are -- we are entitled to a remedy if  
4 we have shown that the burden on the right to vote is  
5 unreasonable. And clearly we have done that.

6 We did that a year ago, and our case only got  
7 stronger. So having established that the burden on the right  
8 to vote is what it is, we get a remedy. Now, is it -- is it  
9 \$5000 for Morgan County? Is it more than that for Fulton? We  
10 have gone -- if you look at our briefs and with the experts  
11 that we brought, we had three experts look at the cost issue,  
12 Your Honor. And we really drilled down on that. And our brief  
13 is very long and detailed on that because we took the cost  
14 issue very seriously. And it is just not there.

15 But even if it were -- even if it were, we would be  
16 entitled to relief. Because we can't sacrifice people's right  
17 to vote just because Georgia has left the system in place for  
18 20 years and it is so far behind. And so what really is, I  
19 think, the more difficult decision is whether you grant our  
20 motion or you grant the Curling plaintiffs' motion.

21 And on that, I think that we -- our position is much  
22 more elegant and much more attainable. On the point about --  
23 getting back to the point I just made -- sorry -- about if the  
24 DREs are unsafe then we move to paper ballots, that is not my  
25 position. That is what Chris Harvey says. That is what

1 Georgia law says. If a voting system like a DRE is  
2 impracticable, the way Chris Harvey, the head of -- the head  
3 over at SOS, says it is -- if it is, you have got to move. No  
4 qualifications. Not if it is convenient. Not if there is a  
5 balancing of the equities. You have got to move. And  
6 everybody who you ask, whether it is Ms. Doran or anybody else,  
7 says yes, if they are unsafe, if they are insecure, of course,  
8 we are not going to use them. Are you kidding me? Of course,  
9 we are not going to use them. Yeah, we'll go through the  
10 hassle. Everybody says that because that is the law.

11 THE COURT: Well, that is -- I understand what you're  
12 arguing. But the state isn't saying we're not going to change.  
13 They are saying we implement -- we passed legislation -- yes,  
14 they could have passed it a month or two earlier. And we think  
15 this is -- the state in its very considerable authority in  
16 discretion in terms of the management of election matters  
17 under -- as recognized under federal law says we are moving  
18 towards that. We just -- it is going to take -- we're not  
19 going to be able to implement this new system that we have just  
20 adopted until the beginning of March basically.

21 And even then, they are not going to be in full  
22 implementation necessarily until the election. But it is not  
23 that they are saying we're not going to change, which really  
24 was the ultimate thing that I was basically opining about in  
25 2018 is they can't -- that the state could not continue to have

1 its head in the sand and to say no change is needed, no change  
2 is necessary.

3 I'm not saying that it necessarily is all of the  
4 change that everyone would like to see. But, you know, there  
5 is considerable discretion that the -- the case law basically  
6 provides to a state in framing its own system.

7 MR. BROWN: We don't believe their discretion extends  
8 to leaving the people in November who are voting just  
9 completely without a constitutional option and that our remedy  
10 fixes. And it is a very modest remedy. And it is modest in  
11 that it is narrowly tailored to the core constitutional defect.  
12 And that is, you don't have a paper backup. And that is what  
13 we're providing.

14 Curling's is a little bit more complicated. And I  
15 think that ours is better for that reason. But, Your Honor, we  
16 really are -- in my view the way we are framing this, we are  
17 really not following what the law says. Because what the law  
18 says -- and the best restatement of this is in *Wesberry vs.*  
19 *Sanders* that Emmet Bondurant argued. And that was Hugo Black.  
20 And Hugo Black says, no right is more precious in a free  
21 country.

22 And why is the word -- why is that word -- and it  
23 means a lot to me because precious doesn't mean valuable --  
24 just mean valuable. Of course, it means valuable. But it  
25 means something that is of great value that is not to be

1 wasted.

2           And Georgia is wasting its citizens' constitutional  
3 rights to vote. In everything you have heard, that is what  
4 they are doing. And it is careless, and they could have done  
5 better. They should have done better. If it costs the state  
6 more, then they are going to have to fix it.

7           All these costs that you are hearing about, the  
8 scanners, those are state costs. The state bought all those  
9 scanners. They have saved millions of dollars by not having to  
10 replace these things. It is like driving a car that is as old  
11 as mine. I have saved a lot of money by not getting a new car.  
12 Yeah, it breaks down. If something happens, it is my  
13 responsibility to fix it. It is nobody else's fault. It is  
14 the same thing with the state.

15           So there -- and the other thing is that the -- I know  
16 that this is not supposed to be punitive. But looking at your  
17 order and looking at what they have done, they cannot complain,  
18 Your Honor, if they have a little bit of additional expense to  
19 be able to cover the million people who are going to be voting  
20 in November in 2019.

21           And it is an ideal time to do this change. Because  
22 these are -- although a lot of people are eligible to vote, not  
23 too many people vote. There is a lot of -- and so all the  
24 experts say this is an ideal time.

25           But, Your Honor, this is about the precious right to

1 vote. And it should not be treated carelessly as Georgia is  
2 doing.

3 Thank you.

4 THE COURT: Thank you very much.

5 CLOSING ARGUMENT

6 MR. CROSS: Your Honor, last September, we were  
7 before this Court with no discovery and Your Honor still found  
8 that we had a likelihood of success on the merits. And what we  
9 now know is that what we thought about this system was only a  
10 small portion of what it really is.

11 The Constitution we submit, Your Honor, requires  
12 abandoning the current system and all its components because  
13 Dr. Shamos, their own expert, and Ms. Payton have established  
14 that the vulnerabilities go way beyond what Your Honor thought  
15 before, what any of us thought. They extend not just to the  
16 DREs, not just to memory cards, but to GEMS itself. And that  
17 has been established in a variety of ways.

18 Ms. Payton herself has said one thing that is for  
19 certain is that a U.S. election will be hacked, no doubt about  
20 it. And she says paper ballots -- their own expert says paper  
21 ballots are the best fraud prevention, Your Honor.

22 I do think it is important to pause on their strategy  
23 for a moment. Their defense is to keep saying there is no  
24 evidence of a hack. It is disingenuous at best because what  
25 Dr. Shamos confirmed again and again in his deposition and what



1 Ms. Payton confirmed is they just haven't looked.

2 And one has to ask given that Ms. Payton and  
3 Dr. Shamos have been retained since 2017 -- they both say that  
4 they could do this. Why haven't they looked? Either they are  
5 terrified of what they are going to find, as we are, or they  
6 don't care, or it is something more nefarious. And I'll leave  
7 it at that.

8 But it doesn't matter why. All that matters, Your  
9 Honor, is we are left in a situation far more egregious than we  
10 were in September of last year. And you can't rely on what  
11 they tell you.

12 Their defense to say when Ms. Payton comes in and  
13 says only three of these serious flaws were remedied by the  
14 November election is for Mr. Beaver, the CIO who hired her, to  
15 say, well, she is wrong. They are disputing their own  
16 evidence.

17 And this is the same person who told you in sworn  
18 testimony last year, don't worry. We have a secure system  
19 because we do penetration testing, but didn't tell you that  
20 penetration testing had failed and then Ms. Payton and her  
21 entire team had taken administrative access over the entire  
22 domain at the Secretary of State, including what she calls  
23 election-related systems.

24 THE COURT: I'm sorry. Who are you saying?  
25 Mr. Beaver or --

1 MR. CROSS: Ms. Payton had the access.

2 THE COURT: Right. But who are you saying  
3 misrepresented?

4 MR. CROSS: Mr. Beaver. Because in his August  
5 declaration he said, don't worry, we do penetration testing.  
6 He left out the critical fact that it failed badly.

7 This is also the same person who told you our GEMS  
8 databases are unique and confidential. He admitted right from  
9 the start that that was misleading, Your Honor.

10 So the only person they brought in this room to  
11 defend the system who has actually seen it, because they won't  
12 allow anyone else, is someone who has shown himself to be  
13 utterly incredible. If he actually didn't know that their  
14 system was not unique and that that was truthful at the time,  
15 well, frankly, Your Honor, that may be worse than a lie because  
16 it shows that the man who is supposed to guard this has no idea  
17 how bad the system truly is.

18 Where we ultimately are, Your Honor, with the relief  
19 is that they have a new system that's going to get rolled out  
20 this year. It includes an EMS that will work with paper  
21 ballots. They have said it has to be in place for all counties  
22 by December. We're only asking for that EMS to be pushed  
23 forward by seven weeks, as Mr. Finley explained. That can be  
24 done. That can be scaled. There is no evidence from anyone in  
25 this courtroom that that cannot be done.

1           In-precinct scanners, Dr. Shamos himself was emphatic  
2 it has got to be in-precinct scanners. It is the only way to  
3 have a secure election if you're going to do it. They are  
4 going to have in-precinct scanners under the new system. We're  
5 just asking that it be moved up and scaled, which our experts  
6 have shown it can. Not one of their experts have said that  
7 that cannot be done. Not one of their county officials said it  
8 cannot be done.

9           THE COURT: But they have said -- and it is  
10 intuitive, frankly, particularly in -- one could argue in a  
11 system that has had many deficiencies that it would be -- to  
12 date that it might be extraordinarily challenging and  
13 undermining to have to implement a new system as you've  
14 requested immediately now and then in the spring jump again and  
15 do what the state legislature has mandated.

16           And, you know, that is obviously a huge challenge and  
17 might undermine the functionality of the electoral system. I  
18 mean, it is not that these folks have had a system that has  
19 worked with a great degree of kind of sophistication as it has  
20 gotten older and older and older.

21           MR. CROSS: Two responses, Your Honor. First, the  
22 Courts have made clear that administrative inconvenience is not  
23 a basis to deny a constitutional right, including the right to  
24 vote. They can get it done. If Your Honor orders it, it will  
25 get done.

1           The second point is this is why our relief is so  
2 simple. It takes what they are already going to do, the EMS  
3 that will have to be in place under the new mandate, the  
4 in-precinct scanners that will be in place under the new  
5 mandate. All it does is to say for now on a preliminary basis  
6 don't roll out the BMDs, use hand-marked ballots -- paper  
7 ballots for this year. They can then continue to roll out the  
8 BMDs next year. And we will deal with that when that comes.

9           But we're the only people in this room that are  
10 proposing the simple solution of a single election system  
11 across the state. No one else is proposing that. And none of  
12 their experts critically, Your Honor, have endorsed their  
13 current system. Not Ms. Payton. Not Dr. Shamos.

14           And so what I will say, Your Honor, is they have  
15 painted you into a very small and uncomfortable corner with the  
16 Constitution painted all around you. The only way you get out  
17 and the way they want you to go is to tread all over that  
18 because you cannot keep the current system or even GEMS or  
19 AccuVote. Because if you do, every single person who knows  
20 anything about it has said that it is hopelessly compromised.  
21 We have no idea what is inside it, Your Honor.

22           Our relief is feasible. And on the cost point, Your  
23 Honor, they have got \$150 million. We're actually -- what  
24 we're saying is hand-marked paper ballots cost a lot less than  
25 BMDs. The in-precinct scanners, it is already budgeted for.

1 We're just asking to scale that up, Your Honor.

2 Last thing on the delay point. That is their biggest  
3 point, and I understand it is the one Your Honor just made.  
4 Timing.

5 THE COURT: Well, I realize they are responsible in  
6 their own way for their own delay, but that doesn't take away  
7 the fact that I've got a reality of an equitable remedy. And  
8 it is called an equitable remedy to implement and not do harm.

9 MR. CROSS: But the problem is, Your Honor, if we --  
10 you're setting a precedent and you are rewarding bad behavior  
11 because it is the same thing. We're here at this stage because  
12 they took an appeal to the Eleventh Circuit that the Eleventh  
13 Circuit literally said was frivolous. And there is no question  
14 in anyone's mind that that was a delay strategy.

15 So what happens is we keep getting to this time  
16 crunch where they say now it is too late. But they got us  
17 there. So they just keep treading on the constitutional right.  
18 It would be someone like just in the days of desegregation just  
19 saying, well, we can't do it now. Come back next year. We're  
20 going to keep litigating.

21 Constitutional rights cannot get resolved and  
22 litigated in that way. It would reward it forever. And the  
23 fear we have is they are not going to bring this to a close in  
24 the way that it needs to be. They are going to drag their  
25 feet.



1           And I would ask the Court to look at the case of  
2     *Shelby County Advocates for Valid Elections vs. Tre Hargett*,  
3     which is 348 F.Supp.3d 764, which is a 2018 case out of the  
4     Western Division of Tennessee. And in that case, the  
5     allegations made there are very similar to the allegations made  
6     here. In that case, the Court denied injunctive relief. And  
7     if the Court -- I would ask the Court to look at that case  
8     because I believe that the reasoning in that case is applicable  
9     to this case and that for the reasons in this case this Court  
10    ought to deny preliminary injunction.

11           The only other thing I want to talk about is  
12    specifically with respect to the counties and the cities who  
13    actually operate the elections. The people in the trenches  
14    that came and testified told the Court about the difficulties  
15    with attempting to make a change in the year of 2019. And  
16    because you have a situation where there is absolutely no  
17    evidence that the vulnerabilities that they have shown in the  
18    system have caused any harm to anyone, the Court ought to  
19    listen to the people on the ground here in Georgia who operate  
20    and who are telling the courts the problems with going forward  
21    with the change in 2019.

22           THE COURT: So I should just ignore all of the  
23    national findings about the vulnerabilities of the system and  
24    the difficulties even that Dr. Shamos says that everyone  
25    actually know exactly what is under the hood?

1 MS. BURWELL: Well, vulnerabilities don't make a  
2 constitutional infringement.

3 THE COURT: Well, they have done more than that.  
4 They have said also that -- in fact, there is a lot of evidence  
5 that there was probing, that there is other -- that there has  
6 been a lot of Russian probing, that there is more than that,  
7 but that we just simply -- basically we're in the position that  
8 we are sitting ducks and don't know.

9 Just like, frankly, lots of things happen in other  
10 data systems and people say there is no problem until -- as we  
11 talked about before, until basically the money is taken. But  
12 in the case of voting, there is not anyone with the State of  
13 Georgia's system up until we end up having any type of paper  
14 confirmation in some way or another -- there is no way for  
15 anyone to say yes, this is the vote I cast.

16 So it is all well and good to say there is not really  
17 any problem. I accept that it is important to hear from people  
18 in the trenches, and I think I have been very respectful of  
19 that, and I'm very interested in that.

20 MS. BURWELL: My argument is not that there have not  
21 been issues because that is not my issue. That is the state's  
22 issue. My issue is on behalf of the counties, the people in  
23 the trenches, the people who are actually operating the  
24 elections. And if they come to the Court and say, an order for  
25 us to have an election in 2019 that is based on paper ballots



1 is problematic, versus the so-called experts that the  
2 plaintiffs called who don't have any experience in the State of  
3 Georgia who every single one of them, if you look at their  
4 declarations, is part of an organization whose goal is to  
5 decertify the kinds of machines that are being used in Georgia.  
6 And experts aren't supposed to be advocates. They are supposed  
7 to be experts. They are not supposed to have an agenda. Yet  
8 they came in here with no information on the State of Georgia,  
9 our procurement, our election process, and said, of course they  
10 can do it in 2019. But not a single one of them had as little  
11 time as they are telling the Court you ought to give the  
12 counties and cities to respond.

13           Every single one of them in the states where they  
14 were, Colorado, New York, California, had a minimum of six  
15 months. And that is what we're saying to the Court. We're  
16 talking about 2019. Our position is that in 2019 it is too  
17 late for this Court to enter a mandatory preliminary  
18 injunction, especially under the facts of this case.

19           And yes, they have talked about vulnerabilities. But  
20 again, Your Honor, they have talked about things that could  
21 happen, not that have happened. And the issue in this case is  
22 voter disenfranchisement, not the fact that there are  
23 vulnerabilities. Because even Dr. Halderman said there are  
24 vulnerabilities with every system of voting that you have,  
25 whether it is paper ballots or machines.

1           So the question before the Court as far as the  
2 counties and cities are concerned is in the year 2019 will this  
3 Court determine that cities and counties have to now move with  
4 only a few months' notice to paper ballots. There hasn't been  
5 any testimony anywhere that anyone has ever moved, transitioned  
6 from machines to paper ballots in less than six months.

7           And so our position is we ask the Court to look at  
8 the case and to determine that the balancing of the harm favors  
9 an orderly election, not one based on chaos, which is exactly  
10 what you would have if you attempted to force counties and  
11 cities to move to paper ballots in the year 2019.

12           THE COURT: Thank you.

13                           CLOSING ARGUMENT

14           MR. TYSON: Thank you, Your Honor.

15           As Ms. Burwell just said, we are here on a mandatory  
16 injunction. The burden on the plaintiffs is high. And what I  
17 want to do is just walk through where we were last September  
18 and what has happened since then.

19           So at the hearing last September, you had a lot of  
20 evidence of DRE vulnerabilities and not a whole lot of evidence  
21 on the state's side for what was being done about those  
22 vulnerabilities. And I know there was a significant concern by  
23 the Court about whether state officials were ignoring the  
24 growing threats that we see that we've talked about throughout  
25 this case.

1           And since that time, we had an election, we had an  
2 inauguration, and within just four months after that we had  
3 legislation that has passed and a new voting system that is  
4 being put into place.

5           The state went through the process that a  
6 deliberative policy-making body would do. They heard from the  
7 advocates who favor different kinds of voting systems. They  
8 heard from people who had experiences. And the state  
9 legislature ultimately concluded to go with a method that is  
10 recommended by the very National Academy of Sciences report  
11 that the plaintiffs have relied on so heavily for the  
12 vulnerabilities in DREs. I don't think there is any  
13 disagreement that the state needs to move away from the DRE  
14 system. The state policymakers chose to do that and are moving  
15 quickly towards that.

16           The state appropriated \$150 million to get that done  
17 and to move that process along. There were a wide variety of  
18 updates in election statutes in light of the problems that  
19 happened in 2018 and the other issues that were raised.

20           The state has added rules about cybersecurity that  
21 require malware scans recognizing the threats that are there.  
22 As you heard after the Kennesaw State breach, there was a  
23 rebuilding of the ballot building server at a different  
24 location with new -- with the original software.

25           And I know there is some discussion back and forth

1 about the Fortalice reports. But if anything, it shows the  
2 Secretary's office is taking cybersecurity very seriously and  
3 is working to mitigate the risks -- identify and mitigate  
4 risks. That is what you always want to be doing in the  
5 security context. And so the state has taken significant  
6 action forward since the point that Your Honor's order came out  
7 in September.

8           And I think when we are thinking about the balancing  
9 of the equities and the public interests, we have to balance  
10 the -- what we heard from election officials about the cost and  
11 the difficulties of implementing a new voting system when early  
12 voting begins in just 80 days for the November elections, when  
13 it begins in 19 days for these elections in Coweta County, and  
14 against the evidence of no breach, no evidence of any sort of  
15 hack or any sort of manipulation of the election system.

16           Balance that against the burden that is placed on  
17 election officials and on the public. And the reality is  
18 facing this when we have a new vendor announced -- and it  
19 should be just a matter of days as we discussed -- there will  
20 be a process that will begin. That process will be to design  
21 the very policies and procedures that have to surround an  
22 election system to make sure it works. And that will include  
23 how we're going to handle the paper ballots that are generated  
24 by the ballot marking devices. It is going to include how we  
25 design the polling places, how we deal with the electrical

1 problems. All the pieces that are involved in actually  
2 administering an election are going to have to be decided.

3 And the questions that are going to be decided  
4 through that process are different for a ballot mark device  
5 system than for a hand-marked paper ballot system. In a ballot  
6 mark device system, you don't have questions about voter  
7 intent. You don't have questions about how to process the  
8 stray marks and the other things that voters will put on  
9 ballots. You have to figure out how to deal with overvotes and  
10 the possibilities of human manipulation after a ballot has been  
11 cast.

12 Those processes have to be put into place. And as we  
13 heard from Ms. Ledford and others, putting another process in  
14 the middle of that will be incredibly disruptive and a  
15 distraction to implementing the ballot mark device system.

16 The state would have to or this Court would have to  
17 design how are we going to handle hand-marked paper ballots for  
18 a single set of municipal elections in 2019 while we're in the  
19 middle of trying to administer a different set of processes and  
20 procedures for ballot marked device paper ballots.

21 THE COURT: Well, let me ask you this. It is one  
22 thing to say wait until we get this done and we're going to do  
23 it right now. But -- and we're doing exactly what the National  
24 Academy recommended. But this whole business of -- and I  
25 realize it is a separate claim. But it is still concerning in

1 thinking about an equitable relief.

2           If the state ends up choosing a system or has chosen  
3 a system where I can look at the printout but, in fact, the  
4 real controlling determination as to what is the selection that  
5 is going to be input into the system is something I can't  
6 actually verify, which is the bar code, how does that -- how  
7 does it resolve that? I know it is an uncomfortable position  
8 to ask you. But, you know, it is one thing to say to the  
9 Court, listen, this is exactly the same, but, in fact, it might  
10 not be the same because I don't think anyone can read a bar  
11 code.

12           MR. TYSON: Your Honor, I think there's two points on  
13 that. Number 1, I feel like I just need to say obviously we  
14 don't believe that is anywhere in the scope of the plaintiffs'  
15 complaint --

16           THE COURT: I understand that. But --

17           MR. TYSON: -- or their motions. And I'll set that  
18 aside.

19           THE COURT: I understand that, and I'm not asking  
20 about it for that purpose. I'm asking about it in terms of the  
21 Court's exercise of its equitable discretion saying is this  
22 really likely cured or are we, in fact, just going to be into  
23 another version of this in the way that Mr. Cross has  
24 indicated.

25           MR. TYSON: Yes, Your Honor. I think that the key

1 thing there is the additions in House Bill 316 related to  
2 auditing. And when you have a ballot marked device and the  
3 voter can check and see what the human readable selections are,  
4 it is required in the statute that the system has to have human  
5 readable selections.

6           So we can audit what is listed as the -- what the  
7 voter has been able to look at as the selections with the  
8 results the bar code gets. And so we have an ability because  
9 we have a voter-verifiable paper trail to determine if there  
10 are issues.

11           The plaintiffs' complaint throughout this whole  
12 process has been that DREs are not auditable. The fact that  
13 we'll have county level audits starting as soon as possible but  
14 no later than November 2020 and that we'll have this beginning  
15 process to get Georgia into the kind of cutting edge of the  
16 risk-limiting audits -- that is a process that is going to do  
17 that and to address that. And any concerns about compromises  
18 later can be addressed because we'll be able to determine  
19 through an auditing process what is going on. So the claims  
20 about the bar codes I see as very different than the claims  
21 related to the DREs and the issues there.

22           One other concern that had been raised was about  
23 the -- we have runoffs in October as well. And I'm just trying  
24 to factor in when we are doing the timing how are we going to  
25 handle this different system.

1           So I think for the other piece that I wanted to talk  
2 about, Your Honor, is dealing with the question for disabled  
3 voters. And the idea that we can -- either ballot marking  
4 devices and DREs are so terrible that no one can use them  
5 except for disabled voters who are required to have an  
6 accessible means of voting. And while the Curling plaintiffs  
7 have discussed at length that they could obtain some ballot  
8 marking devices in a timely way that would meet their  
9 requirements for ballot marking devices, they put forward no  
10 evidence that those systems exist, that they can be procured in  
11 a sufficient timeline, and place it in a very real danger of if  
12 you are trying to procure a non-bar code system -- if that is  
13 what they are saying can be done, they haven't put forward any  
14 evidence that that is actually feasible or possible in the time  
15 line.

16           And the Coalition plaintiffs seem to say, well, we'll  
17 just keep using DREs for disabled voters. But if they believe  
18 the system is so unconstitutional that it would be adverse for  
19 all voters, it doesn't make any sense to require disabled  
20 voters to vote on a system that they believe is  
21 unconstitutional.

22           And then we're back to the question of cost. The  
23 state has appropriated money to take action in light of the  
24 security concerns that have been raised, in light of the need  
25 to update the call from the National Academies, from the



1 investigations that have happened all around -- to take action.  
2 And the fact that we are facing a significant cost, we have  
3 heard testimony. Counties and cities will face significant  
4 costs trying to put in place an intermediate remedy if we're  
5 left with that scenario. And I know that the plaintiffs have  
6 made this argument that, well, we will just handle it like we  
7 do provisional ballots. But as you heard from the county  
8 election officials, there is a different process for  
9 provisional ballots. And it is not a matter of just kind of  
10 queuing up additional paper ballots to have at the precinct.  
11 Because we're still back to the same questions about how we  
12 administer that at the county and at the precinct level.

13           So, Your Honor, for the state depending on -- what  
14 we're facing is the very real possibility of not only a danger  
15 to voters in terms of confusion and problems with getting poll  
16 workers and having a system that actually functions correctly,  
17 but we're also facing a very real danger of disrupting an  
18 ongoing procurement that is designed to address the very  
19 concerns that have been raised in this case.

20           Given the nature of what the plaintiffs are asking,  
21 the steps the state has taken to comply and to advance the  
22 program chosen by the National Academy of Sciences and  
23 recommended by them and the complicated nature of the relief in  
24 this case, we would say that the facts and the law do not  
25 clearly favor the plaintiffs, which is the standard under a

1 mandatory injunction. And the Court should not interrupt the  
2 ongoing process of moving the State of Georgia toward ballot  
3 marked devices with paper ballots.

4 THE COURT: So this is another relief issue, which is  
5 you have a very -- the state itself has a very aggressive  
6 schedule. And so the plaintiffs basically implicitly say also,  
7 well, they may not really be ready to roll in March so maybe  
8 we're being asked to just keep on delaying. You have a --  
9 because you're not ready. You have a sample of ten  
10 jurisdictions that you are working with for this fall election.

11 And what are those jurisdictions?

12 MR. TYSON: I believe Mr. Russo has those, Your  
13 Honor.

14 MR. RUSSO: If I can have a second, yes, Your Honor.  
15 The jurisdictions that the state provided to me, I believe,  
16 this morning or maybe last night was Bacon, Bartow, Carroll,  
17 Catoosa, Charlton, Decatur, Evans, Lowndes, Paulding, Treutlen.

18 THE COURT: Decatur, is that the City of Decatur or  
19 Decatur County?

20 MR. TYSON: County of Decatur.

21 MR. RUSSO: County. They are all counties.

22 MR. TYSON: I think the goal, Your Honor, is to find  
23 kind of a variety of sizes -- relative sizes of counties to  
24 make sure that we can address the varying problems from a  
25 smaller county like Morgan County to a larger county like

1 Chatham County.

2 THE COURT: And I realize you are going to say this  
3 is sort of like potentially irrelevant. But what if you are  
4 not ready and you are -- again come March? Because this is  
5 such for your own -- it is an aggressive schedule for the state  
6 itself at least having had the legislation adopted late in the  
7 legislative session, the procurement taking whatever period it  
8 has taken, but a significant amount of time.

9 I mean, what is your fallback arrangement other than  
10 simply to continue using the DREs? If we don't -- and did you  
11 even consider -- and it is not you personally I realize. But  
12 did the state consider conceivably having ten jurisdictions  
13 where it would use a ballot -- a hand ballot count arrangement  
14 instead? I mean, just basically what I was trying to pursue  
15 with the gentleman from Chatham County.

16 MR. TYSON: Yes, Your Honor. I'm not aware of any  
17 consideration. I know the legislature considered the various  
18 systems. And one of the systems that they received a lot of  
19 lobbying and effort was a hand-marked paper ballot system. So  
20 that's where the -- any consideration happened.

21 THE COURT: I realize that, but I'm just talking  
22 about the fact that you don't have any other fallback. You  
23 don't know even how this is going to work and how -- come  
24 November. So, you know, all -- you know, I guess I'm -- I have  
25 concerns that I'll be in Groundhog Day, you know, forever more.

1 Every election I'm going to be here. And that is the concern.  
2 Not because of me personally. But that is not -- that is not  
3 fair for the citizens of this state.

4 MR. TYSON: I'll say two things to that, Your Honor.  
5 Number 1, as a condition of bidding in the procurement, the  
6 vendor is required to certify that they would be able to meet  
7 the demands and the timeline that was given. So we have that  
8 initial piece. We also have Mr. Finley's testimony here that  
9 he thought that the state's goal was very achievable and was  
10 doable. That is from the plaintiffs' side.

11 So the fact that there is evidence before you that  
12 this is proceeding on that, I understand the concern but I  
13 think that is also the reason why, as you know, governments  
14 cannot necessarily move as quickly. We have the  
15 as-soon-as-possible language in the statute where the goal of  
16 the State of Georgia is to as soon as possible get to ballot  
17 marked devices -- ballot mark device paper ballots.

18 And if -- and I understand your concern, and I don't  
19 believe there is an additional way that we could address that  
20 except to continue using the existing system because of the  
21 exact concerns that we have raised here. When you interpose an  
22 intermediate system, you interrupt the process and slow down  
23 the as-soon-as-possible command of the legislature.

24 Thank you, Your Honor.

25 MR. BROWN: Your Honor, I'll just be a minute.

1 THE COURT: Do y'all have an agreement as to how you  
2 are --

3 MR. CROSS: No. Well, we had time limits.

4 MR. BROWN: I wasn't done. Was I done?

5 MR. CROSS: Yeah. That was the beeping. Your alarm  
6 went off.

7 MR. BROWN: I thought that was my phone. Just one  
8 thing, Your Honor, if --

9 THE COURT: One minute. Go ahead.

10 CLOSING ARGUMENT

11 MR. BROWN: Your Honor, there is no evidence of this  
12 new system. Here is -- this is the switcheroo. They didn't  
13 bring anybody in here to explain the new system. They are  
14 getting the bond thing in here sort of over the transom. And I  
15 don't know -- so they get the good documents in here but not  
16 the other ones. They didn't put on a case about this.

17 And the most -- other than the three people with who  
18 do the GEMS in their garages, other than those, that evidence,  
19 the most terrifying line in the case was from Merritt Beaver  
20 who said, getting this in place in time for the 2020  
21 presidential election is tight, if everything goes right.

22 That is terrifying, Your Honor. They have no backup.  
23 And the only way to reconcile all of those equities is to say  
24 the state has to have a constitutional backup for the  
25 presidential election. How can it not? How can it not?



1 Honor.

2 If they had even the slightest shred of confidence in  
3 their system, you could be rest assured Ms. Payton or  
4 Dr. Shamos would have looked at it. They would have done it  
5 over the last two years and they would have come into this  
6 courtroom and they would have presented the evidence.

7 Remember, Dr. Shamos testified that there was a flaw  
8 so severe in 2006 that he had insisted Pennsylvania not go  
9 forward with the DREs. They have not remediated that. If they  
10 had it, they would have shown you. Dr. Shamos testified if  
11 that still is outstanding they cannot go forward with the DREs.

12 And let's be clear, Your Honor. What we have heard  
13 from Dr. Shamos and Ms. Payton, the penetration testing, the  
14 many flaws -- we are so far beyond DREs. I cannot make that  
15 clear enough, Your Honor. We can't end up in a world where we  
16 become too focused on that.

17 Because the GEMS is where everything starts, the  
18 memory cards. Dr. Shamos agreed. If you get into GEMS,  
19 everything is flawed. And he said it takes no more  
20 sophistication to swap a memory card than it does to swap paper  
21 ballots. And here is the perversity of their defense. Their  
22 attack on paper ballots is, well, we can't possibly secure  
23 them. They'll disappear. They'll get thrown in a lake.  
24 Somebody will do something with them.

25 Pause on that for a moment with what that means. If

1 they can't secure a box of paper ballots, how in the world can  
2 they secure 27,000 DREs, tens of thousands of memory cards that  
3 float all over the state, 160 GEMS servers, some of which have  
4 been connected or apparently all of which were connected to  
5 phone lines -- at least 159?

6           They have indicted their own system, as have their  
7 own experts. Your Honor, we are done with this current system.  
8 And as Your Honor pointed out, they have no -- absolutely no  
9 alternative. And to say that our experts don't have experience  
10 in the State of Georgia is because they won't allow them.

11           And, remember, we asked to look at the GEMS servers.  
12 They represented to Your Honor GEMS is so sensitive that even  
13 Dr. Halderman, a renowned expert who has his own lab, couldn't  
14 do it. And then what do we learn today? Something that  
15 Mr. Barnes didn't disclose in his deposition. That they have  
16 contractors who out of their homes build ballots and GEMS  
17 databases from their homes on their PCs.

18           And we heard nothing about whether anyone has ever  
19 been to their homes and have any idea what the situation is.  
20 That's completely at odds with what they represented to this  
21 Court time and time again about how GEMS databases are  
22 maintained. Their representations are as empty as their  
23 defense, Your Honor.

24           On the feasibility, Ms. Burwell said there is no  
25 evidence that anybody could do this. Well, let's go back to



1 what Mr. Finley testified to. California in the span of six  
2 months swapped out 40,000 DREs for hand-marked paper ballots  
3 for 4 million voters in a presidential primary year. In six  
4 months.

5 We're asking here to do it for small and local  
6 elections that are going to amount to a fraction of that,  
7 probably only hundreds of thousands of voters across the  
8 elections. In individual elections, you are talking hundreds  
9 or maybe thousands of voters often. So it is a tiny fraction  
10 in an off year.

11 If California could do what they did, surely they can  
12 unless they are just going to tell you that they are less  
13 competent. And I don't think we're going to hear that.  
14 Virginia did it from September to November.

15 THE COURT: All right. Now you -- wrap it up.

16 MR. CROSS: Your Honor, the last point on audits,  
17 just because this has gotten a lot of attention, they have had  
18 no evidence on audits. Audits aren't going to exist in the  
19 state in any meaningful sense until 2024. Audits are not an  
20 answer.

21 Thank you, Your Honor.

22 THE COURT: I know there's a bunch of just clean-up  
23 of the record, and I'll leave Mr. Martin to deal with you-all  
24 about that in terms of the documents.

25 And do we have the video of Dr. Shamos?

1           COURTROOM DEPUTY CLERK:  Yes.

2           THE COURT:  I appreciate that everyone has worked a  
3 lot of hours and given a lot of thought to this.  And I do also  
4 appreciate that people have very strong feelings about this and  
5 that it is, of course, what makes for a robust democracy that  
6 everyone wants to protect in their own way.

7           And these are very difficult issues though.  And I'm  
8 going to wrestle with them the best as I can.  But there are  
9 not simple answers.  I certainly wish the state had been more  
10 forthright with me a year ago.  I think -- and I am not  
11 pointing to current counsel or prior counsel in that regard  
12 either.

13           But the fact is that the state of things was dire  
14 enough that it would have saved us time.  And I think that  
15 Mr. Cross' complaint and argument regarding that we should  
16 have -- that Dr. Halderman should have been allowed to under  
17 the circumstances presented as evident now been allowed to look  
18 at the server is warranted.  I don't know that he would have  
19 found anything either.

20           And I don't know why the Fortalice firm that was  
21 obviously trusted was basically not given other more laser-like  
22 tasks.  But maybe the first issue, of course, for the state  
23 was -- as she said was, were the walls of the kingdom itself  
24 functional.  And it was much more basic.

25           You know, I understood that.  But, of course, the

1 election system in its integrity was front and center here and  
2 should always be front and center in any democracy. And we  
3 always consider it a mark against a democracy when we can't --  
4 when citizens can't have faith in their democracy.

5           Then, on the other hand, there is a true reality, you  
6 know, whether people like it or not, that there was a  
7 legislative deliberation of great length. And people may  
8 disagree with it. But the legislature was presented with a  
9 variety of issues and concerns and obviously knew they couldn't  
10 stick with the DRE and took a course of action.

11           So it is not something the Court can lightly just  
12 say, oh, let's -- I'm going to ignore that. And even as  
13 important as all of the voters' interests are in this coming  
14 election, I don't also want to run -- run amok of the change  
15 that is in process.

16           I share the concern about the audits being perhaps  
17 not a reality until 2004 {sic}. It is a system that was  
18 allowed to grow way too old and archaic. So climbing out of  
19 this is not a simple thing. On the other hand, the Court is  
20 just -- the Judge is just a judge. I'm not -- I might try to  
21 be the queen of the facts. But I'm not the queen of the  
22 reality and policy and administration.

23           So it is a very daunting circumstance to try to face  
24 all of that and the very serious issues that all sides have  
25 presented. So that is what we'll be trying to figure out in

1 the next few days. But not tomorrow.

2 MR. CROSS: Thank you, Your Honor.

3 MR. RUSSO: Thank you.

4 THE COURT: Thank you very much. Thank you for your  
5 seat power too.

6 COURTROOM SECURITY OFFICER: All rise. Court is in  
7 recess.

8 **(The proceedings were thereby concluded at 8:22**  
9 **P.M.)**

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C E R T I F I C A T E

UNITED STATES OF AMERICA  
NORTHERN DISTRICT OF GEORGIA

I, SHANNON R. WELCH, RMR, CRR, Official Court Reporter of the United States District Court, for the Northern District of Georgia, Atlanta Division, do hereby certify that the foregoing 379 pages constitute a true transcript of proceedings had before the said Court, held in the City of Atlanta, Georgia, in the matter therein stated.

In testimony whereof, I hereunto set my hand on this, the 2nd day of August, 2019.

*Shannon R. Welch*

\_\_\_\_\_  
SHANNON R. WELCH, RMR, CRR  
OFFICIAL COURT REPORTER  
UNITED STATES DISTRICT COURT