

**SEAN P. TRENDE
STONE vs WES ALLEN**May 07, 2024
DISTRICT COURT
N.D. OF ALABAMA
1-4

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1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE NORTHERN DISTRICT OF ALABAMA
3 - - -
4 KHADIDAH STONE, et al., :
5 Plaintiffs, :
6 vs. :Case No. 2:21-CV-01531-AMM
7 WES ALLEN, et al., :
8 Defendants. :
9 - - -
10
11 May 7, 2024
12 Remote Videoconference and In-Person Deposition of
13
14 Sean P. Trende
15
16 a witness herein, called by the
17 Plaintiffs for cross-examination under the
18 applicable Rules of Federal Civil Court Procedure,
19 taken before us, Jeanine Fansler (Pages 1 - 83),
20 and Beth A. Higgins (Pages 83 - 274), Professional
21 Reporters and Notaries Public in and for the State
22 of Ohio, taken pursuant to Notice, at the offices
23 of ACLU of Ohio, 1108 City Park Avenue, Suite 203,
24 Columbus, Ohio 43206, on Tuesday, May 7, 2024,
commencing at approximately 9:00 a.m., and
concluding at approximately 6:36 p.m.

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24
25 Also Present Via Zoom:
26
27 Avner Shapiro
28 Richard Mink
29 Cami Shorter
30 Brenton Smith
31 Dr. Kassra Oskooii
32 - - -
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1 Tuesday Morning Session
2 May 7, 2024
3 9:00 a.m.
4 - - -
5 STIPULATIONS
6 It is hereby stipulated by and between
7 counsel for the respective parties herein that this
8 deposition of Sean P. Trende may be taken at this
9 time by the Notary; that said deposition is being
10 taken pursuant to Notice; that said deposition may
11 be reduced to writing in stenotypy by the Notary,
12 whose notes may thereafter be transcribed out of
13 the presence of the witness; that proof of the
14 official character and qualifications of the
15 Notary, the time and place of the taking of said
16 deposition are hereby waived.
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<p style="text-align: right;">Page 5</p> <p style="text-align: center;">EXHIBITS</p> <p>DEPOSITION EXHIBITS</p> <p>Exhibit 9 - 122</p> <p>Document entitled, American Community Survey Multiyear Accuracy of the Data (5-year 2017-2021), 22 pages</p> <p>Exhibit 10 - 126</p> <p>2-2-24 Stone v. Allen Expert Report of Dr. Traci Burch, 34 pages</p> <p>Exhibit 11 - 147</p> <p>12-27-21 memo Dr. Grofman and Trende wrote to the Chief Justice and Justices of the Supreme Court of Virginia, re: Redistricting maps, 64 pages</p> <p>Exhibit 12 - 158</p> <p>Expert Report of Trende in Washington case, 82 pages</p> <p>Exhibit 13 - 181</p> <p>8-4-23 Expert Report of Sean P. Trende in Singleton, et al., v. Allen; Milligan, et al., v. Allen; Caster, et al., v. Allen, 64 pages</p> <p>Exhibit 14 - 244</p> <p>Arizona Independent Redistricting Commission Overview of Decennial Redistricting Process and Maps, January 2022, 246 pages</p> <p>---</p>	<p style="text-align: right;">Page 7</p> <p>A. Yes.</p> <p>Q. When?</p> <p>A. Probably 20 times now.</p> <p>Q. What were your most recent depositions?</p> <p>A. I don't know. It's actually been a while. I can't remember if I was deposed in the Washington case or not. Before that, maybe New Mexico.</p> <p>Q. Louisiana?</p> <p>A. Oh, yeah, Louisiana. I don't remember the timeline of when those -- I think Louisiana was before Washington -- or before New Mexico.</p> <p>Q. Okay. A few ground rules for today. I'll ask questions. If you don't understand the question, let me know. If you answer a question, I will assume you understood the question. Is that fair?</p> <p>A. Yes.</p> <p>Q. Also, the court reporter is here and typing everything you and I are saying. So it's really important that only one person speak at a time. Therefore, please allow me to finish my</p>
<p style="text-align: right;">Page 6</p> <p style="text-align: center;">PROCEEDINGS</p> <p>---</p> <p>SEAN P. TRENDE, being by Jeannie Fansler first duly sworn, as hereinafter certified, deposes and says as follows:</p> <p style="text-align: center;">CROSS-EXAMINATION</p> <p>BY MR. GENBERG:</p> <p>Q. Dr. Trende, Jack Genberg. We met off the record, but I'm reintroducing myself for the record. My colleague, Jess Unger, from the Southern Poverty Law Center. Thank you for coming in today.</p> <p>A. Thanks for having me.</p> <p>Q. So you understand you're testifying under oath today?</p> <p>A. Yes.</p> <p>Q. And is there anything that may prevent you from understanding my questions or answering truthfully today?</p> <p>A. No. I'll ask for clarification if I need it.</p> <p>Q. Great.</p> <p>Have you been deposed before?</p>	<p style="text-align: right;">Page 8</p> <p>questions and sentences. I will do my best to allow you to finish your answers before jumping into the next question. Okay?</p> <p>A. Okay.</p> <p>Q. What did you do to prepare for this deposition?</p> <p>A. I met with Mr. Seiss and reviewed my reports.</p> <p>Q. Did you review Mr. Fairfax's first expert report dated February 2?</p> <p>A. I read it. I don't know I -- if it was -- you'd categorize it as preparation for the deposition, but I've read it. Same with Dr. Oskooii's, O-s-k-o-o-i-i.</p> <p>MS. SHORTER: What did you say the name of the report was? Did you review --</p> <p>MR. GENBERG: Mr. Fairfax's first expert report.</p> <p>MS. SHORTER: Okay.</p> <p>MR. GENBERG: And then the second one was Dr. Oskooii's.</p> <p>MS. SHORTER: Yes. Okay.</p> <p>BY MR. GENBERG:</p> <p>Q. Did you review Mr. Fairfax's</p>



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<p style="text-align: right;">Page 9</p> <p>1 rebuttal expert report dated April 19?</p> <p>2 A. Yes. Again, I don't know if it's in</p> <p>3 preparation for this deposition, but I did review</p> <p>4 it.</p> <p>5 Q. Did you review Mr. Fairfax's amended</p> <p>6 rebuttal expert report dated April 30?</p> <p>7 A. I think I'm aware of it. I don't</p> <p>8 know if I actually read it.</p> <p>9 Q. Did you review his supplemental</p> <p>10 expert report dated May 5?</p> <p>11 A. I didn't know it had been filed.</p> <p>12 That's yesterday or the day before?</p> <p>13 Q. That was Sunday.</p> <p>14 A. So I didn't know it had been filed.</p> <p>15 Q. Did you review Dr. Liu's first</p> <p>16 expert report dated February 2?</p> <p>17 A. I've read it. I don't know if it</p> <p>18 would be in preparation for the deposition.</p> <p>19 Q. Did you review Dr. Liu's rebuttal</p> <p>20 expert report dated April 19?</p> <p>21 A. I read it. I don't know if it would</p> <p>22 be in preparation for this deposition.</p> <p>23 Q. Okay. A number of exhibits.</p> <p>24 MR. GENBERG: And the court</p>	<p style="text-align: right;">Page 11</p> <p>1 Thereupon, Exhibit 2 was marked for</p> <p>2 purposes of identification.</p> <p>3 - - -</p> <p>4 BY MR. GENBERG:</p> <p>5 Q. Tab 3, does this appear to be true</p> <p>6 and correct copy of Mr. Fairfax's first expert</p> <p>7 report dated February 2nd?</p> <p>8 A. It appears that way, yes.</p> <p>9 MR. GENBERG: Mark that as</p> <p>10 Exhibit 3, please.</p> <p>11 - - -</p> <p>12 Thereupon, Exhibit 3 was marked for</p> <p>13 purposes of identification.</p> <p>14 - - -</p> <p>15 BY MR. GENBERG:</p> <p>16 Q. Then, Tab 4, does this appear to be</p> <p>17 a true and correct copy of Mr. Fairfax's amended</p> <p>18 rebuttal expert report dated April 30th?</p> <p>19 A. It does.</p> <p>20 MR. GENBERG: We'll mark that as</p> <p>21 Exhibit 4.</p> <p>22 - - -</p> <p>23 Thereupon, Exhibit 4 was marked for</p> <p>24 purposes of identification.</p>
<p style="text-align: right;">Page 10</p> <p>1 reporter has a copy?</p> <p>2 MR. UNGER: Uh-huh. This one can be</p> <p>3 yours.</p> <p>4 BY MR. GENBERG:</p> <p>5 Q. Starting with Tab 1. Tab 1, does</p> <p>6 this appear to be a true and correct copy of your</p> <p>7 expert report in this case?</p> <p>8 A. It does appear to be a true and</p> <p>9 correct copy of my first report, yes.</p> <p>10 MR. GENBERG: Could we mark it as</p> <p>11 Exhibit 1, please.</p> <p>12 - - -</p> <p>13 Thereupon, Exhibit 1 was marked for</p> <p>14 purposes of identification.</p> <p>15 - - -</p> <p>16 BY MR. GENBERG:</p> <p>17 Q. Tab 2, does this appear to be true</p> <p>18 and correct copy of your supplemental report in</p> <p>19 this case?</p> <p>20 A. It does.</p> <p>21 Q. Okay.</p> <p>22 MR. GENBERG: Mark that as</p> <p>23 Exhibit 2, please.</p> <p>24 - - -</p>	<p style="text-align: right;">Page 12</p> <p>1 BY MR. GENBERG:</p> <p>2 Q. Tab 5, does this appear to be a true</p> <p>3 and correct copy of Dr. Oskooii's April 19th</p> <p>4 rebuttal report?</p> <p>5 A. It does.</p> <p>6 MR. GENBERG: Mark that as</p> <p>7 Exhibit 5.</p> <p>8 - - -</p> <p>9 Thereupon, Exhibit 5 was marked for</p> <p>10 purposes of identification.</p> <p>11 - - -</p> <p>12 BY MR. GENBERG:</p> <p>13 Q. And Tab 6, does this appear to be a</p> <p>14 true and correct copy of Dr. Liu's first expert</p> <p>15 report dated February 2nd?</p> <p>16 A. Yes.</p> <p>17 MR. GENBERG: Mark that as</p> <p>18 Exhibit 6.</p> <p>19 - - -</p> <p>20 Thereupon, Exhibit 6 was marked for</p> <p>21 purposes of identification.</p> <p>22 - - -</p> <p>23 BY MR. GENBERG:</p> <p>24 Q. And Tab 7, does this appear to be a</p>



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<p style="text-align: right;">Page 13</p> <p>1 true and correct copy of Dr. Liu's rebuttal expert 2 report dated April 19? 3 A. Yes. 4 Q. Great. 5 MR. GENBERG: Mark that as 6 Exhibit 7. 7 --- 8 Thereupon, Exhibit 7 was marked for 9 purposes of identification. 10 --- 11 BY MR. GENBERG: 12 Q. And then I have one outside of the 13 binder. Does this appear to be a true and correct 14 copy of Mr. Fairfax's supplemental rebuttal expert 15 report dated May 5th? 16 A. I've never seen this report before, 17 so I will have to go off your representation that 18 it is. 19 Q. Okay. Great. 20 MR. GENBERG: And can we mark this 21 as Exhibit 8, please. 22 --- 23 Thereupon, Exhibit 8 was marked for 24 purposes of identification.</p>	<p style="text-align: right;">Page 15</p> <p>1 other factors that he claimed to have considered. 2 Q. When you say didn't form a compact 3 minority district, could you elaborate on any of 4 that? 5 A. I think what I said -- and if I 6 didn't, I should correct -- I said it didn't 7 contain a correct compact minority group. 8 Q. Okay. Thank you for that 9 clarification. 10 And what did you mean by compact 11 minority group? 12 A. If you looked at the map -- I'm 13 trying to remember if -- which one was in that 14 case, but there were either four or five minority 15 groups in cities that were cut in half that were 16 placed together to achieve the 50 percent plus one 17 threshold. And this was illustrated through 18 various maps and analyses. 19 Q. And has a court rendered any opinion 20 on your opinion in this case? 21 A. I don't think the court did in 22 Robinson. 23 Q. Okay. Have you read any of 24 Mr. Fairfax's published articles?</p>
<p style="text-align: right;">Page 14</p> <p>1 BY MR. GENBERG: 2 Q. Are you familiar with Mr. Fairfax? 3 A. I'm familiar with him. 4 Q. Do you consider him to be an expert 5 in his field? 6 A. He's been qualified as such. So 7 certainly at least for purposes of the court, yes. 8 Q. Have you read any of his other 9 reports in other cases? 10 A. I believe he was -- Yes. Yes, I 11 have. 12 Q. Any that you recall? 13 A. The report in -- I don't remember if 14 it was the Robinson plaintiffs or the Galmon 15 plaintiffs, but it was a Louisiana congressional 16 case. 17 Q. And did you form an impression of 18 this report in that case? 19 A. Yes. 20 Q. And what was that impression? 21 A. I thought that his demonstration 22 district didn't demonstrate a compact minority 23 group for purposes of Gingles 1, and that race 24 predominated in the drawing of the districts over</p>	<p style="text-align: right;">Page 16</p> <p>1 A. No. 2 Q. Are you familiar with Dr. Oskooii? 3 A. Yes. 4 Q. Do you consider him to be an expert 5 in his field? 6 A. I believe he's a race and ethnicity 7 scholar. So he's certainly an expert in that field 8 and the courts qualified -- the courts have 9 qualified him in other fields, then I suppose so. 10 Q. Have you read any of his other 11 reports in other cases? 12 A. Yes. 13 Q. Which cases? 14 A. The Coca, C-o-c-a, case in Kansas 15 arising out of Dodge City and then a case in -- the 16 Washington state case. I can't remember the case 17 name. 18 Q. Palmer? 19 A. That sounds right. 20 Q. Did you form an impression of his 21 report in -- Or sorry. Did you form an impression 22 of his opinion in the Coca case? 23 A. Yes. 24 Q. What was that impression?</p>



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<p style="text-align: right;">Page 17</p> <p>1 A. I thought the Gingles 1 district 2 that he drew didn't contain a compact -- didn't -- 3 Not all of the districts that he drew contained 4 compact minority groups. It was not clear if they 5 would perform. And there were five opinions in 6 that case; but without the report in front of me, I 7 can't remember all of them. I do remember those 8 two. 9 Q. And did the court in that case 10 render an opinion on your opinion that there was 11 not compact minority groups in Dr. Oskooii's map? 12 A. I don't believe so. I didn't 13 testify at trial, but I don't know -- I don't even 14 know if opinions have come down in that case yet. 15 Q. Then, the Washington case, did you 16 form an opinion of Dr. Oskooii's opinion in that 17 case? 18 A. Yes. That case is a little bit 19 screwy, for lack of a better term, because it went 20 through so many iterations at the remedial phase. 21 It's hard to keep track of exactly where we were at 22 the end. I started with an opinion that, you know, 23 race had predominated in the drawing of his 24 remedial district, that the minority groups were</p>	<p style="text-align: right;">Page 19</p> <p>1 in his field? 2 A. Well, he's certainly been recognized 3 by the court in at least one case in which I 4 testified. So I suppose to that extent, yes. 5 Q. Have you read any of his other 6 reports in other cases? Sounds like you have. 7 A. Yes. I was -- Certainly the South 8 Carolina congressional case that's before the 9 Supreme Court right now. I can't remember if he 10 was in the South Carolina legislative case that 11 settled or not. 12 Q. And did you form an opinion of 13 Dr. Liu's opinion in the South Carolina case? 14 A. That was a long time ago, so I don't 15 remember. 16 Q. Have you read any of Dr. Liu's 17 published articles? 18 A. No. 19 Q. Did you review the complaint in this 20 case? 21 A. No. 22 Q. Do you have an understanding of the 23 claims being brought by the plaintiffs? 24 A. Well, my understanding is that the</p>
<p style="text-align: right;">Page 18</p> <p>1 dispersed, and that he changed many more districts 2 than he needed to remediate the injury. 3 We ended up at the end with kind of 4 a battle of the plans. You draw a plan, 5 Dr. Oskooii draws a plan, and I will pick one. So 6 that case kind of morphed over the course of a few 7 months. 8 Q. And did the court pick a plan 9 between your plan and Dr. Oskooii's plan? 10 A. Yeah. The court opted for one of 11 Dr. Oskooii's plans. 12 Q. And what is your understanding of 13 the court's reasoning for adopting Dr. Oskooii's 14 plan? 15 A. I really don't know. I thought it 16 was pretty clear that you have to do the minimal 17 changes to remediate the injury, and I don't think 18 Dr. Oskooii's map did. So. 19 Q. Have you read any of Dr. Oskooii's 20 published articles? 21 A. No. 22 Q. Are you familiar with Dr. Liu? 23 A. Yes. 24 Q. Do you consider him to be an expert</p>	<p style="text-align: right;">Page 20</p> <p>1 plaintiffs are seeking -- are claiming a violation 2 of the Voting Rights Act in the Huntsville area and 3 the Montgomery area and are seeking two additional 4 ability-to-elect districts. 5 Q. Did you meet or speak with anyone in 6 preparation for this deposition? 7 A. I had a phone conversation with 8 Mr. Seiss. 9 Q. Anyone other than counsel? 10 A. No. 11 Q. Let's talk about your education. So 12 you have a JD. 13 Do you intend to offer any legal 14 opinions in this case? 15 A. The line between a legal opinion and 16 an expert opinion is sometimes blurry. I know this 17 court has previously expressed interest in 18 lawyers -- or in experts giving opinions on whether 19 a map is reasonably compact or not, which to me is 20 a legal matter; but I guess, you know, that's 21 something reasonable minds can disagree on. I'm 22 certainly not intending to take depositions or 23 write briefs or anything like that. 24 Q. Do you intend to render an opinion</p>



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<p style="text-align: right;">Page 21</p> <p>1 about whether any map relevant to this case is 2 reasonably compact? 3 A. I think that's in my second 4 supplemental -- or in my second report. 5 Q. Are you referring to your analysis 6 of district boundaries in your second -- in your 7 supplemental report? 8 A. Yeah. There's a -- In Exhibit 2, 9 looking at the table of contents, Section 3.3 is an 10 analysis of the compactness of Fairfax Map 2, the 11 districts. And 4.2, starting on page 22, is an 12 analysis of the compactness of the districts. 13 Q. Okay. And your first report doesn't 14 contain any analysis of whether districts are 15 reasonably compact? 16 A. That's right. 17 Q. What was your focus of study during 18 your master's program in applied statistics? 19 A. The master's in applied statistics 20 is a sort of broad-ranging program of course work. 21 So you're not -- you don't really have a focus, as 22 such. I suppose it would be regression analysis. 23 Linear models is what I did most of my work in. 24 Q. Could you explain a little bit more</p>	<p style="text-align: right;">Page 23</p> <p>1 analysis, which linear models typically are, 2 involves properly interpreting confidence 3 intervals. I think that's -- I think every exam I 4 ever took has a question of confidence intervals 5 and proper interpretation on them. So it certainly 6 informs my understanding. Although, that was 7 probably more directly impacted by my course work 8 in Bayesian analysis and probability theory. 9 Q. And can you tell me about your study 10 in Bayesian analysis and probability theory? 11 A. Sure. So just like to speak broadly 12 in law, you have some people who take an 13 originalist approach and some people who take a 14 purposivist approach. Or in economics, there's 15 modernists and Cavians. In statistics, you have 16 frequentists and Bayesians. 17 And it's two different ways of 18 looking at what a coefficient is. The frequentist 19 will say what a probability is. The frequentist 20 will say the probability is some fixed factor that 21 we try to explore through experimentation. The 22 Bayesian would call that metaphysical nonsense and 23 say that it is all -- all that it is something 24 we've -- all probability is is something we</p>
<p style="text-align: right;">Page 22</p> <p>1 what linear models are? 2 A. Yes. So, well, I'll do my best. 3 When we talk about regression analysis or t-tests 4 or -- or even ANOVA, it's all a certain way of 5 thinking about the relationship between variables. 6 It's a specific form of statistical analysis that 7 assumes that two variables are linear, that the 8 coefficients are linear related. That doesn't mean 9 you can't have some type of polynomial term 10 based on -- p-o-l-y-n-o-m-i-a-l term -- based on 11 the data, but the coefficients themselves are 12 linear. 13 It's the general form of you have an 14 output, you have a link function, and then you have 15 the equation expression. So it can go broader than 16 just general regression analysis into, you know, 17 logistic regression analysis as a type of linear 18 model. Poisson, P-o-i-s-s-o-n, regression is a 19 linear model. That's the best I can do at this 20 level. 21 Q. Okay. And does that study inform 22 your opinion in this case? 23 A. Well, certainly -- Yes and no. 24 Certainly every interpretation of a frequentist</p>	<p style="text-align: right;">Page 24</p> <p>1 subjectively learn from experience. 2 The more kind of direct consequence 3 of that is that their different approaches yield 4 different interpretation. If you're doing a 5 Bayesian -- and it's B-a-y-e-s-i-a-n -- analysis, 6 you can make direct probability statements about 7 the probability of an outcome. If you're doing 8 frequentist analysis, on the other hand, you get 9 these things like confidence intervals and p-values 10 that sort of have nonintuitive interpretations; but 11 the upshot is they don't give you direct 12 probability statements about the likelihood that a 13 hypothesis is true or not. 14 Q. Okay. As part of your probability 15 statistics study, did you study normal distribution 16 curves? 17 A. Yes. 18 Q. Would it be fair to call these 19 bell-shaped curves? 20 A. Yes. Well, all normal distributions 21 are bell shaped; not all bell shapes are normal 22 distributions. 23 Q. Okay. And what circumstances lead 24 to a normal distribution curve?</p>



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<p style="text-align: right;">Page 25</p> <p>1 A. A lot of things are just naturally</p> <p>2 normally distributed or approximately normally</p> <p>3 distributed in adult male height. It's technically</p> <p>4 not normal since it can't be negative, but the</p> <p>5 approximation works.</p> <p>6 Q. Do you have a definition for normal</p> <p>7 distribution curve?</p> <p>8 A. It's one over the square root of</p> <p>9 2π Sigma, and then you exponentiate negative one</p> <p>10 half, X minus V squared over I think it's the</p> <p>11 standard deviation, but it might be the variance.</p> <p>12 Q. How about a definition for the</p> <p>13 mathematically challenged attorneys?</p> <p>14 A. That's the definition. The normal</p> <p>15 distribution is a way of explaining how things are</p> <p>16 random. There's lots of ways -- When we think of</p> <p>17 things being random, we think of it being</p> <p>18 completely random or just unpredictable.</p> <p>19 And in statistics, randomness</p> <p>20 usually has a different definition. There's</p> <p>21 different ways of being random. So gamma rays</p> <p>22 striking the earth are technically random, but they</p> <p>23 follow something called, appropriately enough, a</p> <p>24 gamma distribution, which kind of puts bounds on</p>	<p style="text-align: right;">Page 27</p> <p>1 voting age population percentage to elect preferred</p> <p>2 candidates?</p> <p>3 A. I don't believe so.</p> <p>4 Q. What was your Ph.D. focus of study?</p> <p>5 A. I passed comprehensive exams in</p> <p>6 American politics and in political methodology. So</p> <p>7 those were my two concentrations.</p> <p>8 Q. Did your work on your dissertation</p> <p>9 inform your opinion in this case?</p> <p>10 A. I would say not directly. I mean,</p> <p>11 obviously, things you learn can influence you or</p> <p>12 enhance your understanding of things. You know,</p> <p>13 certainly the second paper in my dissertation</p> <p>14 dealing with integrated methods to replace</p> <p>15 approximations and Bayesian analysis required a lot</p> <p>16 of understanding in statistical theory and</p> <p>17 interpretation of uncertainty. But I don't</p> <p>18 think -- I mean, I didn't cite it in my report,</p> <p>19 so I don't think there's a direct draw there.</p> <p>20 Q. In your work as an expert, have you</p> <p>21 ever conducted a racially-polarized voting</p> <p>22 analysis?</p> <p>23 A. Yes.</p> <p>24 Q. What -- Which cases?</p>
<p style="text-align: right;">Page 26</p> <p>1 the way earthquake aftershocks tend to be</p> <p>2 exponential.</p> <p>3 So we know, like, the aftershocks --</p> <p>4 although we can't predict them with precision, we</p> <p>5 know an aftershock is more likely to occur two</p> <p>6 minutes after an earthquake than it is two weeks</p> <p>7 after an earthquake. Poisson, P-o-i-s-s-o-n, is</p> <p>8 oddly enough the distribution that governs deaths</p> <p>9 from horse kicks to the head during the French</p> <p>10 Revolution. And a normal distribution is a</p> <p>11 different type of random outcome. It's, as you</p> <p>12 noted earlier, bell shaped.</p> <p>13 So the outcomes are clustered</p> <p>14 towards the mean. 68 percent of the area under the</p> <p>15 normal curve curves within one standard deviation</p> <p>16 of the mean, and 95 percent of the area under the</p> <p>17 curve is 1.96 standard deviations from the mean.</p> <p>18 80 percent is 1.28 standard deviations.</p> <p>19 Q. Did you conduct any racially</p> <p>20 polarized voting analysis as part of your study</p> <p>21 with the master's or Ph.D. programs?</p> <p>22 A. I don't believe so.</p> <p>23 Q. Did you conduct any analysis to</p> <p>24 assess any racial or ethnic groups that required a</p>	<p style="text-align: right;">Page 28</p> <p>1 A. The Michigan case, which is on my</p> <p>2 resume. The Tennessee case, which is on my resume.</p> <p>3 The Arizona matter is a little more complicated</p> <p>4 because I have a non-disclosure agreement there, so</p> <p>5 I can't say exactly who did what and to what</p> <p>6 extent; but I was part of a racially-polarized</p> <p>7 voting analysis there.</p> <p>8 Q. I asked you before about the</p> <p>9 analysis assessing racial or ethnic groups that</p> <p>10 required a voting age population percentage to</p> <p>11 elect preferred candidates. Would it be fair to</p> <p>12 call that an effectiveness analysis?</p> <p>13 A. I think we can certainly use them</p> <p>14 interchangeably. There might be some nuances, but</p> <p>15 I can't think of any.</p> <p>16 Q. Okay. Have you conducted an</p> <p>17 effectiveness analysis previously to the</p> <p>18 effectiveness analysis you conducted for this case?</p> <p>19 A. It's kind of the same answer with</p> <p>20 the Arizona. I can't divulge details on exactly</p> <p>21 who did what or how or to what extent, but I was</p> <p>22 part of the group that conducted an effectiveness</p> <p>23 analysis there. I shouldn't call it a case. The</p> <p>24 Arizona matter.</p>



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<p style="text-align: right;">Page 29</p> <p>1 Q. Okay. Any other examples of</p> <p>2 effectiveness analysis you've conducted?</p> <p>3 A. I don't believe so.</p> <p>4 Q. Did you have a role in drawing</p> <p>5 Arizona's congressional and state legislative</p> <p>6 districts in your role as counsel for the Arizona</p> <p>7 independent restricting commission?</p> <p>8 A. I can't answer that.</p> <p>9 Q. Are all the opinions that you intend</p> <p>10 to give at trial in this matter contained in your</p> <p>11 report, either in the first report or the</p> <p>12 supplemental report?</p> <p>13 A. I don't even know if I'm going to be</p> <p>14 called at trial, but I certainly haven't</p> <p>15 generated -- or what they're going to ask me, but I</p> <p>16 certainly haven't generated any opinions that I</p> <p>17 didn't put in the report.</p> <p>18 Q. Are there any changes or corrections</p> <p>19 you wish to make to your report, either the first</p> <p>20 or supplemental report?</p> <p>21 A. There's probably things I would -- I</p> <p>22 might wordsmith a little different. I'm sure we'll</p> <p>23 hit them today. But the opinions themselves, no.</p> <p>24 They're how I would put them.</p>	<p style="text-align: right;">Page 31</p> <p>1 short answer to your question.</p> <p>2 Q. Okay. When did that change?</p> <p>3 A. I believe it was when we received</p> <p>4 the -- or when the lawyers received the reports</p> <p>5 from your experts.</p> <p>6 Q. And when the reports came in from</p> <p>7 plaintiffs' experts, what were you asked to do at</p> <p>8 that point?</p> <p>9 A. I was asked to review them. And I</p> <p>10 don't know how far the privilege extends to exactly</p> <p>11 what I was asked to do, so I don't know.</p> <p>12 THE WITNESS: What do you think,</p> <p>13 Mr. Seiss?</p> <p>14 MR. SEISS: The privilege protects</p> <p>15 any of our communications. So we only have to</p> <p>16 disclose your compensation and any assumptions that</p> <p>17 we wanted you to make or any evidence that we</p> <p>18 provided you that informed your opinions. So I</p> <p>19 would instruct you not to answer beyond that.</p> <p>20 A. I don't know how I can answer that</p> <p>21 question without running afoul of the advice of</p> <p>22 counsel.</p> <p>23 Q. Were there any -- Was there any work</p> <p>24 that you did in this case that you came up with on</p>
<p style="text-align: right;">Page 30</p> <p>1 Q. Okay. Anything come to mind that --</p> <p>2 regarding wordsmithing?</p> <p>3 A. Not specifically. Every time I go</p> <p>4 back and read something that I wrote, I think, God,</p> <p>5 I should have written that differently; but nothing</p> <p>6 egregious to my recollection.</p> <p>7 Q. Have you undertaken any analysis of</p> <p>8 any issues that are relevant to this case that you</p> <p>9 did not include in the report?</p> <p>10 And when I say "report," I mean the</p> <p>11 first report or supplemental report.</p> <p>12 A. Yeah. We can refer collectively to</p> <p>13 the two reports as "the reports," so I'll know what</p> <p>14 you mean.</p> <p>15 I don't remember.</p> <p>16 Q. When were you retained in this case?</p> <p>17 A. It was after the Allen decision came</p> <p>18 down at the district court level the first time</p> <p>19 around, but I believe before it came down from the</p> <p>20 Supreme Court.</p> <p>21 Q. What were you asked to do when you</p> <p>22 were retained in this case?</p> <p>23 A. When I was retained, the focus was</p> <p>24 on the congressional matter. So nothing is the</p>	<p style="text-align: right;">Page 32</p> <p>1 your own -- came up with the idea to do on your own</p> <p>2 without advice of counsel?</p> <p>3 A. I really don't remember.</p> <p>4 Q. Are you familiar with the Supreme</p> <p>5 Court opinion in Thornburg v. Gingles?</p> <p>6 A. Yes.</p> <p>7 Q. And what is your understanding?</p> <p>8 A. That was the first case where the</p> <p>9 Supreme Court interpreted the effects prong of the</p> <p>10 1982 amendments to the Voting Rights Act. My</p> <p>11 understanding is that as a result of that opinion</p> <p>12 it set forth a three-prong test that has been at</p> <p>13 least the basic framework -- well, it was the</p> <p>14 framework for multi-member districts because</p> <p>15 Gingles was a multi-member district case, but it</p> <p>16 was subsequently adopted for single-member</p> <p>17 districts. I'm blank on the name of that case.</p> <p>18 But the three-prong test is the main thing that</p> <p>19 comes out of the Gingles case.</p> <p>20 Q. What is your understanding of the</p> <p>21 three prongs?</p> <p>22 A. You have to -- It's kind of a</p> <p>23 gate -- I call it a gatekeeping function. Other</p> <p>24 people may have different analogies. But as part</p>



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<p style="text-align: right;">Page 33</p> <p>1 of the gatekeeping function, plaintiffs have to</p> <p>2 demonstrate three factors. They have to</p> <p>3 demonstrate that the minority group is sufficiently</p> <p>4 compact and numerous enough to constitute a</p> <p>5 majority of the population in a reasonably</p> <p>6 configured district; that the minority group blocks</p> <p>7 the vote and votes as a block in that the</p> <p>8 majority -- I can't remember the exact verbiage,</p> <p>9 but votes sufficiently as a block to typically</p> <p>10 defeat the minority candidates of choice.</p> <p>11 After Gingles -- the Gingles factors</p> <p>12 are deemed to have been met, the court moves on to</p> <p>13 its totality of the circumstances analysis to</p> <p>14 determine whether historical conditions interact</p> <p>15 with the standard to render the minority group less</p> <p>16 able to participate in the political process.</p> <p>17 Q. Do you understand any of your</p> <p>18 opinion to apply to that totality of the</p> <p>19 circumstances analysis?</p> <p>20 A. I mean, the totality of the</p> <p>21 circumstances analysis is, you know, totality. So</p> <p>22 I would imagine if counsel so wished they could use</p> <p>23 all of it for that, but I think it's mostly</p> <p>24 Gingles 1 and then 3.</p>	<p style="text-align: right;">Page 35</p> <p>1 Q. -- other than it refers?</p> <p>2 A. I think they're illustrative</p> <p>3 districts --</p> <p>4 Q. Illustrative.</p> <p>5 A. -- because of they're plaintiffs'</p> <p>6 attempt --</p> <p>7 Q. I see. Yeah.</p> <p>8 A. -- to demonstrate compliance with</p> <p>9 Gingles 1.</p> <p>10 Q. Okay. I will refer to them as</p> <p>11 illustrative districts or illustrative plans.</p> <p>12 And if I refer to, quote, any of</p> <p>13 Mr. Fairfax's illustrative districts, you'll</p> <p>14 understand I'm referring to Mr. Fairfax's</p> <p>15 illustrative set of Districts 7 and 25 that are</p> <p>16 contained in his plans 1, 2, 2A, and 3?</p> <p>17 A. Yes.</p> <p>18 What is 2A?</p> <p>19 Q. 2A is --</p> <p>20 A. Is that the --</p> <p>21 Q. I think that was introduced in the</p> <p>22 supplemental, the May 5th -- Yes, that's in the May</p> <p>23 5th report, the supplemental rebuttal report. So.</p> <p>24 A. Okay.</p>
<p style="text-align: right;">Page 34</p> <p>1 Q. You described Gingles 1 as -- Well,</p> <p>2 I'm not going to repeat. I don't have your words.</p> <p>3 But something along the lines that there needs to</p> <p>4 be a showing that the minority group is</p> <p>5 sufficiently large and geographically compact to</p> <p>6 constitute a majority and reasonably configured</p> <p>7 district, something along those lines.</p> <p>8 Is it okay if I refer to such a</p> <p>9 district as an illustrative district or Gingles</p> <p>10 1 district?</p> <p>11 A. I would take Gingles 1 district. I</p> <p>12 think illustrative districts are the plaintiffs'</p> <p>13 attempts to carry their burden on Gingles 1, but it</p> <p>14 doesn't necessarily mean they comply with it.</p> <p>15 Q. Okay.</p> <p>16 A. I hate to be nit-picky, but this</p> <p>17 transcript follows me around for the rest of my</p> <p>18 life. So.</p> <p>19 Q. So in your opinion -- so in your</p> <p>20 opinion, it's more accurate for the -- to refer to</p> <p>21 Mr. Fairfax's illustrative plans as Gingles 1 plans</p> <p>22 or Gingles 1 districts as opposed to illustrative</p> <p>23 plans or illustrative one districts --</p> <p>24 A. No.</p>	<p style="text-align: right;">Page 36</p> <p>1 Q. I think that's a tweak to the</p> <p>2 original plan too.</p> <p>3 A. Okay.</p> <p>4 Q. Do you intend to offer an opinion</p> <p>5 that any of Mr. Fairfax's illustrative districts do</p> <p>6 not satisfy Gingles 1?</p> <p>7 A. I think that's ultimately a legal</p> <p>8 conclusion. I think I certainly offer opinions</p> <p>9 that lead to that conclusion. But, you know, I</p> <p>10 don't believe that he's demonstrated that these</p> <p>11 districts satisfy the numerosity requirement of</p> <p>12 Gingles 1, with the exception -- So this is where</p> <p>13 lumping them together becomes tricky. I don't have</p> <p>14 a -- I don't have a numerosity argument on</p> <p>15 District 25 because everyone agrees that's a</p> <p>16 majority BVAP, and I don't think I have a</p> <p>17 numerosity argument on his District 3. That goes</p> <p>18 more to the configuration of the district. I would</p> <p>19 suspect that's how counsel is going to argue it.</p> <p>20 Q. Any plan to redistrict 7?</p> <p>21 A. Yes.</p> <p>22 Q. Do you intend to offer an opinion</p> <p>23 that any of Mr. Fairfax's illustrative districts do</p> <p>24 not satisfy the sufficiently geographically compact</p>



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<p style="text-align: right;">Page 37</p> <p>1 portion?</p> <p>2 A. Well, yes. District 3 and 2, I have</p> <p>3 the opinions on the shape of the district. And</p> <p>4 then all six have an opinion as to the population</p> <p>5 compactness. Or I guess -- Well, I don't know. I</p> <p>6 haven't seen 2A before, but it doesn't look like</p> <p>7 it's that different from 2.</p> <p>8 Q. Have you yourself undertaken an</p> <p>9 analysis in this case to show whether a group of</p> <p>10 black population is sufficiently large and</p> <p>11 geographically compact to constitute a majority in</p> <p>12 the recently configured district?</p> <p>13 A. I haven't tried to draw my own</p> <p>14 illustrative districts, if that's what your getting</p> <p>15 at.</p> <p>16 Q. That's what I was getting at, yes.</p> <p>17 A. I think there's analysis of</p> <p>18 District 3, that although it doesn't -- I don't</p> <p>19 draw the district directly, that goes to the</p> <p>20 feasibility of doing so within a three -- within</p> <p>21 three counties.</p> <p>22 Q. Okay. All right. Well, let's talk</p> <p>23 about your opinions regarding the citizen voting</p> <p>24 age population metric. What is citizen voting age</p>	<p style="text-align: right;">Page 39</p> <p>1 included in your black citizen voting age</p> <p>2 population numbers?</p> <p>3 A. So for the first report -- so</p> <p>4 there's three options listed in the American -- in</p> <p>5 the ACS data: black, black-white, and then -- I</p> <p>6 can't remember the exact wording, but it's black</p> <p>7 and American Indian and there's a small group of</p> <p>8 that.</p> <p>9 And I had initially done my analysis</p> <p>10 with all three, but then I examined the exhibits to</p> <p>11 Mr. Fairfax's maps and it looked as if he had only</p> <p>12 used black and black-white. So if you look at the</p> <p>13 code, you can actually see where -- a couple of</p> <p>14 places where they didn't matter, where I forgot to</p> <p>15 take the third prong out.</p> <p>16 So for the first report, it is black</p> <p>17 and black-white. For the second report or the</p> <p>18 supplemental report, it is black, black-white, and</p> <p>19 black-American Indian or whatever the full</p> <p>20 categorization is, because you can look at</p> <p>21 Mr. Fairfax's exhibits and he clearly used all</p> <p>22 three.</p> <p>23 Q. What, including black and American</p> <p>24 Indian or Alaska native, in your black citizen</p>
<p style="text-align: right;">Page 38</p> <p>1 population?</p> <p>2 A. It is United States citizens who are</p> <p>3 at least 18 years of age.</p> <p>4 Q. Where does the citizen voting age</p> <p>5 population data originate that you analyzed for</p> <p>6 this case?</p> <p>7 A. It is a special supplement to the</p> <p>8 American Community Survey or ACS, as I'll refer to</p> <p>9 it.</p> <p>10 Q. Are you aware of an alternative to</p> <p>11 the ACS for citizen voting age population data?</p> <p>12 A. You could have asked the question</p> <p>13 directly on the census and then we don't have</p> <p>14 that -- this discussion. But since the Trump</p> <p>15 administration decided not to follow the</p> <p>16 Administrative Procedure Act, we don't have that</p> <p>17 data. So, no, as of today we don't have an</p> <p>18 alternative.</p> <p>19 Q. What is black citizen voting age</p> <p>20 population?</p> <p>21 A. That would be individuals who are at</p> <p>22 least 18 years old and United States citizens who</p> <p>23 are also identified as black.</p> <p>24 Q. Which combinations with black are</p>	<p style="text-align: right;">Page 40</p> <p>1 voting age population number have increased the</p> <p>2 BCVP number?</p> <p>3 A. It would have a marginal increase in</p> <p>4 it, yes.</p> <p>5 Q. What do you mean by marginal?</p> <p>6 A. Small.</p> <p>7 Q. Do you have an estimate?</p> <p>8 A. I don't have an exact number, no.</p> <p>9 Q. Could it be over a half of a</p> <p>10 percent?</p> <p>11 A. I think it would at most be in that</p> <p>12 neighborhood.</p> <p>13 Q. Could it be over one percent?</p> <p>14 A. That would surprise me.</p> <p>15 Q. It's accurate to say that including</p> <p>16 the black and American Indian or Alaska native</p> <p>17 combination could only have increased the BCVP</p> <p>18 number. Correct?</p> <p>19 A. It would have increased it. It</p> <p>20 wouldn't have increased it enough that you could</p> <p>21 say with a typical degree of confidence that the</p> <p>22 BCVP was above 50 percent. I know that because I</p> <p>23 originally ran the analysis that way and because</p> <p>24 Dr. Oskooii reported numbers. The error of margin</p>



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<p style="text-align: right;">Page 41</p> <p>1 is what it is.</p> <p>2 Q. Okay. For this deposition, okay if</p> <p>3 I abbreviate citizen voting age population as CVAP,</p> <p>4 black citizen voting age population as BCVP,</p> <p>5 voting age population VAP, and black voting age</p> <p>6 population as BVAP?</p> <p>7 A. Yes.</p> <p>8 Q. Would it be okay if we called your</p> <p>9 BCVP estimates for illustrative District 6 point</p> <p>10 estimates?</p> <p>11 A. You mean like 51.2 percent?</p> <p>12 Q. The number that you listed as your</p> <p>13 estimated BCVP numbers in your report, excluding</p> <p>14 the margin of error. Just the number that you</p> <p>15 listed as the estimate, would those be point</p> <p>16 estimates or would we call those point estimates?</p> <p>17 A. Yes. All of the reported CVAP</p> <p>18 numbers are point estimates.</p> <p>19 Q. Okay. Let's talk about how you</p> <p>20 calculated the BCVP percentage point estimates for</p> <p>21 illustrative District 7.</p> <p>22 Okay. For all of your BCVP</p> <p>23 calculations, do you code using R?</p> <p>24 A. That's right.</p>	<p style="text-align: right;">Page 43</p> <p>1 assignment files if they're available, which match</p> <p>2 census blocks with the district to which they're</p> <p>3 assigned. But sometimes those aren't available, so</p> <p>4 you have to read in the shape files directly and</p> <p>5 perform analysis from there. Those types of</p> <p>6 things.</p> <p>7 Q. So all of this you discussed,</p> <p>8 including all of the commands that are a part of</p> <p>9 the setup, you have to input those with every new</p> <p>10 project, there's not a carryover from prior work?</p> <p>11 A. Well, there's plenty of carryover</p> <p>12 because you do the same thing a lot of -- you know,</p> <p>13 over and over again in these cases. For the maps</p> <p>14 that I generate, I have kind of a set function that</p> <p>15 downloads the Google map background or that will</p> <p>16 plot the dots on dot plots or things of that</p> <p>17 nature.</p> <p>18 Q. Was there any -- Other than</p> <p>19 importing the shape files specific to this case,</p> <p>20 was there any additional setup, the libraries,</p> <p>21 other commands, et cetera, that were specific to</p> <p>22 this case that you hadn't done before?</p> <p>23 A. I would have to see the code. I'm</p> <p>24 sure I wrote original code in there to perform some</p>
<p style="text-align: right;">Page 42</p> <p>1 Q. And how does that work?</p> <p>2 A. I'm not entirely sure how to answer</p> <p>3 that question. The best I can say is that you open</p> <p>4 the R software and write statistical code.</p> <p>5 Q. What do you code into the software?</p> <p>6 A. You put commands into the software.</p> <p>7 Q. What kind of commands?</p> <p>8 A. The first commands you -- I always</p> <p>9 put in are to set the working directory where it's</p> <p>10 going to find the data. You put in commands to</p> <p>11 import libraries, which are additional sets of</p> <p>12 commands that are usually specifically engineered</p> <p>13 for a particular use case. There's commands to</p> <p>14 reading data. There's commands to interpret data.</p> <p>15 There's functions that I've written over time that</p> <p>16 I import for repetitive tasks. Those types of</p> <p>17 commands.</p> <p>18 Q. Okay. What about data inputs? What</p> <p>19 data are you inputting?</p> <p>20 A. So you read in shape files, which</p> <p>21 are special spreadsheets that define the contours</p> <p>22 or edges of a polygon, boundaries of a polygon.</p> <p>23 You read in demographic data. You typically use --</p> <p>24 I prefer the block assignment -- direct block</p>	<p style="text-align: right;">Page 44</p> <p>1 of the analysis, but there's -- you know, it's a</p> <p>2 mixture of both.</p> <p>3 Q. So it seems like there's a lot of</p> <p>4 setup involved and a lot of steps. I'm just</p> <p>5 wondering if you think there's any potential for</p> <p>6 error in any of these steps that could change the</p> <p>7 numbers even slightly.</p> <p>8 A. I mean, there's always the potential</p> <p>9 for error.</p> <p>10 Q. Why not use an existing database</p> <p>11 like Maptitude to calculate BCVP?</p> <p>12 A. Well, it's my understanding</p> <p>13 Maptitude doesn't provide the confidence intervals</p> <p>14 or error margins which are at issue here, and as</p> <p>15 far as I know no one's disputed the accuracy of the</p> <p>16 estimated confidence intervals yet.</p> <p>17 Q. Do you have any reason to question</p> <p>18 the accuracy of Maptitude's BCVP point estimate</p> <p>19 calculations?</p> <p>20 A. I mean, to the -- yes and no. I'm</p> <p>21 sure that whatever algorithm Maptitude uses to</p> <p>22 estimate BCVP or HCVAP or whatever will get you</p> <p>23 that point estimate. It's just that those point</p> <p>24 estimates always come with error margins associated</p>



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<p style="text-align: right;">Page 45</p> <p>1 with them.</p> <p>2 It's also true that if you are</p> <p>3 creating legislative districts there's going to be</p> <p>4 some additional unquantifiable error because the</p> <p>5 block groups have to be clipped to create the</p> <p>6 district's voting age population. I actually don't</p> <p>7 know -- I looked. I did not see how Maptitude</p> <p>8 calculated -- how it performs that clipping</p> <p>9 analysis.</p> <p>10 Q. I'm sorry. What needs to be</p> <p>11 clipped?</p> <p>12 A. The block groups.</p> <p>13 Because precincts and block groups</p> <p>14 are not always coterminous, you'd have to figure</p> <p>15 out when a district divides a block group how to</p> <p>16 assign the citizen voting age population estimated</p> <p>17 by the census to people residing within a district</p> <p>18 and people residing outside of the district.</p> <p>19 There's a bunch of different ways you can do that</p> <p>20 that often yield different answers. I'm not</p> <p>21 entirely sure how Maptitude -- what algorithm</p> <p>22 Maptitude employs.</p> <p>23 But because those are estimates,</p> <p>24 there's potential error associated with it</p>	<p style="text-align: right;">Page 47</p> <p>1 in your first report.</p> <p>2 Which metrics did you use for this</p> <p>3 method?</p> <p>4 A. So the code is the better key to</p> <p>5 exactly what I did, but this metric I believe comes</p> <p>6 out of a district court case in 11. But it's to</p> <p>7 look at the overall citizenship grade for a</p> <p>8 particular block group. And then you look at the</p> <p>9 voting age population of the blocks and you say,</p> <p>10 okay, the overall citizenship rate for -- or the</p> <p>11 overall CVAP rate for a given block group is 90</p> <p>12 percent. We have this census block with a hundred</p> <p>13 residents, so we are going to assume that in this</p> <p>14 block 90 percent of the residents are citizens or</p> <p>15 the voting age population citizens.</p> <p>16 Q. So the metrics you're looking at</p> <p>17 there are overall CVAP and then total VAP?</p> <p>18 A. In this paragraph, yeah. I mean,</p> <p>19 the citizenship rate is derived from the total</p> <p>20 voting age population, then you would apply that</p> <p>21 rate to groups within the block group. And then</p> <p>22 you can determine which block groups are in the --</p> <p>23 or which census blocks are in the block group and</p> <p>24 which ones are not in the block group by definition</p>
<p style="text-align: right;">Page 46</p> <p>1 inherently. Especially since when you're dealing</p> <p>2 with the block group level you really do have</p> <p>3 massive error margins to deal with.</p> <p>4 And most of them for doing their</p> <p>5 assignment they're using census blocks, which now</p> <p>6 with differential privacy we're not a hundred</p> <p>7 percent sure that the blocks themselves are giving</p> <p>8 completely accurate depictions of the racial</p> <p>9 breakdown.</p> <p>10 Q. Okay. I think this could be a good</p> <p>11 time for a short break, if that works.</p> <p>12 A. Sure.</p> <p>13 (Recess taken.)</p> <p>14 MR. GENBERG: Okay. I'm ready.</p> <p>15 Back on the record.</p> <p>16 BY MR. GENBERG:</p> <p>17 Q. Dr. Trende, did you have any</p> <p>18 conversations with counsel about the substance of</p> <p>19 the deposition during the break?</p> <p>20 A. No.</p> <p>21 Q. Let's talk about your methods for</p> <p>22 calculating BCVP. Let's start with your Method 1,</p> <p>23 which if you want to follow along in your report I</p> <p>24 believe it's at the last full paragraph of page 22</p>	<p style="text-align: right;">Page 48</p> <p>1 and calculate the CVAP that way for the district.</p> <p>2 Q. Okay. So you applied the CVAP by</p> <p>3 race at the block group level to the total VAP at</p> <p>4 the block level for each block?</p> <p>5 A. Yes. I believe that was the method</p> <p>6 described in the case. Look at the CVAP rate for</p> <p>7 the block group, assume that all of the constituent</p> <p>8 blocks have citizenship rights at the same rate,</p> <p>9 and do your estimates for all the blocks that way.</p> <p>10 You can then determine which blocks are within the</p> <p>11 block group and which groups are not within the</p> <p>12 block group and then aggregate those estimated</p> <p>13 numbers accordingly.</p> <p>14 Q. Okay. So just to be clear, this</p> <p>15 includes all blocks, not just -- not just the</p> <p>16 blocks in the block groups split by the</p> <p>17 illustrative district boundaries?</p> <p>18 A. Well, it doesn't really matter for</p> <p>19 the block groups that are not split because if you</p> <p>20 apply this to -- if you apply this technique you</p> <p>21 should get the same answer; but if you look at the</p> <p>22 code, the only thing that it apportions are the</p> <p>23 split block groups. When block groups are not</p> <p>24 split, you can just take the top blind number and</p>



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<p style="text-align: right;">Page 49</p> <p>1 you don't have to apportion the population.</p> <p>2 Q. Okay. So there's no CVAP to VAP</p> <p>3 conversion going on for the wholly contained block</p> <p>4 groups?</p> <p>5 A. Right. Well, it's not really a CVAP</p> <p>6 to VAP conversion, but the wholly contained block</p> <p>7 groups don't need to be split or apportioned</p> <p>8 because you just have the top blind numbers. If</p> <p>9 you had -- if -- if these -- if we were looking at</p> <p>10 the CVAPs, say, at the county level, you</p> <p>11 wouldn't -- or if you had a district that was the</p> <p>12 entire county -- we have a couple of those in our</p> <p>13 Virginia map -- you wouldn't have to do this type</p> <p>14 of approximation or this added approximation</p> <p>15 because none of the block groups would be split.</p> <p>16 When a district splits a block</p> <p>17 group, you've got to figure out of that block</p> <p>18 group's citizen voting age population number how</p> <p>19 many get put into the district and how many are</p> <p>20 left out of the district. That's what this is all</p> <p>21 about.</p> <p>22 Q. Okay. So for this method, you</p> <p>23 applied CVAP by race numbers to total VAP.</p> <p>24 Correct?</p>	<p style="text-align: right;">Page 51</p> <p>1 are citizens and aggregate them that way. You have</p> <p>2 to get the numerator and the denominator.</p> <p>3 Q. So let me be clear. I guess there's</p> <p>4 two different ways to do this. One way is if at</p> <p>5 the block level -- At the block level you have VAP.</p> <p>6 Correct?</p> <p>7 A. Yes.</p> <p>8 Q. You have total VAP -- let's say,</p> <p>9 hypothetically, 10 people of voting age and you</p> <p>10 also have VAP by race. You could have</p> <p>11 hypothetically three black people of voting age and</p> <p>12 seven white people of voting age.</p> <p>13 A. Sure.</p> <p>14 Q. In Method 1, do you consider that</p> <p>15 there is -- that the VAP data is showing three</p> <p>16 black VAP individuals and seven white VAP</p> <p>17 individuals or do you just consider that there are</p> <p>18 10 voting age persons and apply the CVAP</p> <p>19 percentages to the 10 total people?</p> <p>20 A. The way you phrased that, it's</p> <p>21 neither. It's -- You look at the VAP, the BVAP,</p> <p>22 and the total VAP, and of course use citizenship</p> <p>23 according to the citizenship rate for the block</p> <p>24 group as a whole.</p>
<p style="text-align: right;">Page 50</p> <p>1 A. You take the block group's CVAP, the</p> <p>2 citizenship rate of the voting age population. So</p> <p>3 let's say the block group -- within the block group</p> <p>4 90 percent of the residents of voting age are</p> <p>5 citizens. Okay. Then you would look at each block</p> <p>6 within that block group and say, okay, this group</p> <p>7 has 10 -- a voting age population of ten, we're</p> <p>8 going to assume 90 percent of them are citizens.</p> <p>9 So that would yield a CVAP of nine in this block.</p> <p>10 And you do that for all of the</p> <p>11 blocks within the block group, and then you can --</p> <p>12 or the computer can determine which blocks are in</p> <p>13 the district and which are outside of the district</p> <p>14 and you can aggregate the blocks within the</p> <p>15 district and that will give you an estimate for the</p> <p>16 citizen voting age population.</p> <p>17 Q. Okay. So you take the CVAP</p> <p>18 percentage numbers and the VAP total numbers?</p> <p>19 A. Right.</p> <p>20 Q. And you did not apply the CVAP</p> <p>21 percentage numbers to VAP numbers delineated by</p> <p>22 race at the block level, did you?</p> <p>23 A. Right. So if there's 10 black</p> <p>24 individuals in a block, you would say nine of these</p>	<p style="text-align: right;">Page 52</p> <p>1 Q. Okay. I guess --</p> <p>2 A. So in your scenario where the BVAP</p> <p>3 is 3, and the total VAP is 10, and 90 percent of</p> <p>4 the citizens of the block group -- or 90 percent of</p> <p>5 the voting age population of the block group are</p> <p>6 citizens, you would say there are nine</p> <p>7 individuals -- nine citizens of voting age in that</p> <p>8 block group and I guess it's 2.7 black citizens of</p> <p>9 voting age in that block group.</p> <p>10 Q. Okay. So in that hypothetical you</p> <p>11 would say that there's 2.7 black citizens of voting</p> <p>12 age population in that block and -- I forgot what</p> <p>13 you said -- 9 point something --</p> <p>14 A. Just 9.</p> <p>15 Q. Okay.</p> <p>16 A. 90 percent of 10 is 9.</p> <p>17 Q. Okay. Nine total VAP.</p> <p>18 So would you use the 2.7 number to</p> <p>19 determine the BCVP -- or the BCVP calculation for</p> <p>20 the district?</p> <p>21 A. If the block is within the district,</p> <p>22 yes. If it's outside of the district, you discard</p> <p>23 it. But you use the 2.7 and add that up across the</p> <p>24 district. All of these approximation techniques</p>

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<p style="text-align: right;">Page 53</p> <p>1 use a similar weighting method that can leave 2 fractional individuals. 3 Q. Okay. 4 A. Like I said, these methods have to 5 be done, and they just add an additional amount of 6 uncertainty that doesn't translate well to error 7 margins. It's just kind of there. 8 Q. So the way you described it, it 9 sounds like you're considering the BCVP percentage 10 number at the block group level and you're 11 considering the BVAP number at the block level, 12 those metrics are relevant to your calculation. 13 A. You are obtaining the citizen voting 14 age rate at the block group level and then applying 15 that to the blocks that constitute that block group 16 to estimate the citizen voting age population 17 within the blocks. You can then add up the 18 populations of the blocks that are contained within 19 the district to get an approximation of the citizen 20 voting age population of the block group that is 21 contained within the district. 22 That is the only way -- Well, I 23 mean, there's different ways to do it, but the only 24 way you can do it is through some sort of</p>	<p style="text-align: right;">Page 55</p> <p>1 specifically estimate the VAP/CVAP ratio for the 2 black population in the blocks as well as the total 3 population. I estimate them differently. 4 Like I said, there's multiple 5 approaches that people have used. This is just one 6 approach that exists in a district court opinion 7 within the 11th Circuit. 8 Q. Okay. Let's look at now the 9 hypothetical that Dr. Oskooii gives in paragraphs 10 42 through 44. 11 To illustrate this point, consider 12 the following example. Suppose we have a block 13 group with two blocks, A and B, totalling 2,000 14 VAP. Block A is situated within illustrative 15 District 7, while Block B lies outside of it. 16 Block A has a total VAP of 1,000, with 900 being 17 BVAP. In contrast, Block B also has a total VAP of 18 1,000 but only 100 BVAP. According to ACS data, 19 suppose all 2,000 voting age individuals in the 20 block group are citizens, with half of them or 21 1,000 being BCVP. 22 Applying Dr. Trende's approach -- 23 which I guess you're disputing, but let's do the 24 hypothetical -- to compute BCVP for Block A and B,</p>
<p style="text-align: right;">Page 54</p> <p>1 apportioning technique because precincts don't 2 always line up with block group lines. 3 Q. Okay. Can we turn to Dr. Oskooii's 4 report, Exhibit 5, page 17 -- or sorry -- page 16, 5 paragraph 41. 6 And Dr. Oskooii writes: 7 Dr. Trende's CVAP calculation methods do not appear 8 to consider the proportions of VAP of each racial, 9 slash, ethnic group within census blocks. Instead, 10 he relies only on total VAP within census blocks. 11 Relying on total VAP may lead to an underestimation 12 of the share of BCVP in a district if BVAP is 13 unevenly distributed across census blocks nested 14 within block groups partially included in 15 illustrative District 7. Dr. Trende does not 16 consider this at all in his calculations. 17 Do you dispute what Dr. Oskooii 18 wrote in paragraph 41? 19 A. Yeah. He's wrong. 20 Q. Okay. How is he wrong? 21 A. Well, first off, I am looking at the 22 VAP within each census block because -- as I've 23 explained several times. And second, there are 24 calculation methods that I employed where I</p>	<p style="text-align: right;">Page 56</p> <p>1 we would multiply .5, half of the 2,000 total VAP, 2 by the total block group BCVP of 1,000. This 3 calculation yields a BCVP of 500 for Block A and a 4 BCVP of 500 for Block B. This approach wrongly 5 assumes BVAP is equally distributed across the 6 blocks when that is not the case. 7 However, considering the share of 8 BVAP in each block rather than the total VAP of 9 each block allows for a more precise estimation of 10 BCVP. To determine BCVP for Block A, we would 11 multiply .9, parens, 900 BVAP out of 1,000 VAP, 12 close parens, by the total block group BCVP of 13 1,000, resulting in a BCVP of 900 for Block A. 14 Using the same approach, we would multiply .1, 15 parens, 100 BVAP out of 1,000 VAP, close parens, by 16 the total block group BCVP of 1,000, yielding a 17 BCVP of only 100 for Block B. This approach is 18 more precise because it accounts for the uneven 19 distribution of BVAP present within the blocks 20 nested inside the block group. 21 Now, first of all, I assume -- it 22 sounds like you dispute that -- you know, the 23 portion that says, Applying Dr. Trende's approach 24 to compute BCVP for Block A and B, and his</p>



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<p style="text-align: right;">Page 57</p> <p>1 characterization of your approach, do you dispute</p> <p>2 that part of it?</p> <p>3 A. He's dead wrong. If all the 2,000</p> <p>4 voting age individuals in the block group are</p> <p>5 citizens, we would assume that the total VAP of --</p> <p>6 that the CVAP in Block A is 1,000, that the BCVP</p> <p>7 in Block A is 900, that the CVAP in Block B is</p> <p>8 1,000, and the BCVP in Block B is 100. Since</p> <p>9 Block A is situated within illustrative District 7,</p> <p>10 we would assign 1,000 to the total CVAP of District</p> <p>11 7 and 900 to the BCVP of District 7, and then we</p> <p>12 would discard Block B since it's not within the</p> <p>13 district. If everyone's a citizen, there's nothing</p> <p>14 to estimate.</p> <p>15 Q. So you disagree that -- putting</p> <p>16 aside Dr. Oskooii's characterization of your</p> <p>17 approach, you disagree with the hypothetical -- the</p> <p>18 rest of the hypothetical as well?</p> <p>19 A. It's wrong. If everyone in the</p> <p>20 block group is a citizen, you don't need to</p> <p>21 apportion anything. Block A would have a CVAP of</p> <p>22 1,000, Block B would be a BCVP of 900, and that's</p> <p>23 what you would add to the block group total -- or</p> <p>24 to the district total for both the CVAP and the</p>	<p style="text-align: right;">Page 59</p> <p>1 your estimates and adds some level of uncertainty</p> <p>2 there, but there's just nothing you can do about</p> <p>3 that. Like I said, this is some outside</p> <p>4 unquantifiable source of uncertainty.</p> <p>5 But even in this ideal situation</p> <p>6 where, you know, the VAP and CVAP are estimated to</p> <p>7 be coterminous, it still has some uncertainty</p> <p>8 because you don't really know if the VAP and CVAP</p> <p>9 are determinatus.</p> <p>10 Q. Okay. Let's simplify it a little</p> <p>11 bit. So let's say -- let's just focus on the first</p> <p>12 part. Block A has a total BVAP of 900 of 1,000.</p> <p>13 And part two -- Sorry. Okay. Strike that.</p> <p>14 So Block A, which is inside the</p> <p>15 district, contains 900 BVAP.</p> <p>16 A. Okay.</p> <p>17 Q. Okay. So there's 900 BVAP inside</p> <p>18 Block A, 100 BVAP inside Block B outside.</p> <p>19 What would your Method 1 calculation</p> <p>20 yield for the BCVP of Block A?</p> <p>21 A. 900. Because every voting age</p> <p>22 individual in the block group are citizens.</p> <p>23 Q. Okay. What about the fact that</p> <p>24 Block A has 1,000 total VAP?</p>
<p style="text-align: right;">Page 58</p> <p>1 BCVP.</p> <p>2 Q. Okay. So I think this is a split</p> <p>3 block group where Block A is inside the district,</p> <p>4 Block B is outside of it. So I think this</p> <p>5 hypothetical is about how to disaggregate the CVAP</p> <p>6 to the VAP for a split block group. Is that -- Are</p> <p>7 you saying that?</p> <p>8 A. I mean, yes. But Block A is a</p> <p>9 direct census number. So we know that there are</p> <p>10 900 members or 1,000 residents of this block group</p> <p>11 voting age population contained within the</p> <p>12 district. We know there are 1,000 residents of the</p> <p>13 voting age population that are not contained within</p> <p>14 the district.</p> <p>15 Apportioning voting age population</p> <p>16 is easy; that's just math. And since the citizen</p> <p>17 voting age population is the same as the voting age</p> <p>18 population in this hypothetical, your work is done</p> <p>19 because all of those voting age individuals are</p> <p>20 also citizens.</p> <p>21 So there are 1,000 citizens of</p> <p>22 voting age and 900 black citizens of voting age.</p> <p>23 Of course, you still have the uncertainty that</p> <p>24 comes inherent with the block group that feeds into</p>	<p style="text-align: right;">Page 60</p> <p>1 A. It has 1,000 citizens, all of whom</p> <p>2 live within the district, because the VAP is a</p> <p>3 known quantity directly from the census.</p> <p>4 Q. When you disaggregate BCVP to</p> <p>5 blocks, how did you set up the code for this</p> <p>6 calculation?</p> <p>7 A. Sorry. I have to get back on track.</p> <p>8 What was that?</p> <p>9 Q. When you disaggregate BCVP to</p> <p>10 blocks, how did you set up the code for this</p> <p>11 calculation?</p> <p>12 A. Well, it goes through -- so first it</p> <p>13 sets the wholly within block groups aside because</p> <p>14 there's no estimation that has to be done -- Well,</p> <p>15 I shouldn't say that. None of this sort of</p> <p>16 apportionment estimation has to be done with the</p> <p>17 wholly within the block groups.</p> <p>18 Then it takes the split block</p> <p>19 groups, it identifies the split block groups and it</p> <p>20 goes through them, it iterates through them. So</p> <p>21 let's say there's 17 split block groups. It will</p> <p>22 look at the first split block group, determine the</p> <p>23 overall citizenship rate among the voting age</p> <p>24 population. It will then look at the blocks</p>



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<p style="text-align: right;">Page 61</p> <p>1 contained within that block group and apply that</p> <p>2 citizenship rate to the voting age population</p> <p>3 within those block groups. It will determine which</p> <p>4 blocks are within the district and which blocks are</p> <p>5 outside the district, and it will add the totals</p> <p>6 from the blocks within the district to the total</p> <p>7 district BCVP and CVAP. It will then progress to</p> <p>8 the second split block group, the third, and so</p> <p>9 forth. I believe I did it with an iterated group</p> <p>10 for approach one.</p> <p>11 Q. And what kind of setup is required</p> <p>12 in terms of the kind of setup you discussed</p> <p>13 earlier, the libraries and all of that?</p> <p>14 A. So the CVAP data is downloaded</p> <p>15 directly from the census website. The census data</p> <p>16 is imported through the tidycensus library, and the</p> <p>17 shape files are imported through the Tigris</p> <p>18 library. The blocks -- I can't remember if the</p> <p>19 block shape file comes with the block group to</p> <p>20 which it's assigned or if they're matched. If</p> <p>21 they're matched, it would be with the geomander</p> <p>22 program using the GEOM score match command. But</p> <p>23 that's how it's done.</p> <p>24 Q. Okay.</p>	<p style="text-align: right;">Page 63</p> <p>1 code for all of the BCVP calculations?</p> <p>2 A. Across both reports, well, it</p> <p>3 wouldn't be that much more because it's just</p> <p>4 reusing the old code with a different block</p> <p>5 assignment file. I mean, if I had to spitball, I</p> <p>6 would say five.</p> <p>7 Q. Five hours?</p> <p>8 A. Yeah.</p> <p>9 Q. Why not use a data source that</p> <p>10 already exists that disaggregates CVAP to blocks</p> <p>11 like the redistricting data hub?</p> <p>12 A. I don't believe the redistricting</p> <p>13 data hub had 2022 CVAP up when I wrote this. I</p> <p>14 don't know if it does yet.</p> <p>15 Q. When did you write this?</p> <p>16 A. Sometime in the weeks leading up to</p> <p>17 29 March, 2024.</p> <p>18 Q. Is it after you received</p> <p>19 Mr. Fairfax's report dated February 2nd?</p> <p>20 A. Yes.</p> <p>21 Q. If the restricting data hub had the</p> <p>22 2022 data up at the time you were preparing this</p> <p>23 report, would you have used the districting data</p> <p>24 hub data?</p>
<p style="text-align: right;">Page 62</p> <p>1 A. So you get the block groups, you</p> <p>2 incorporate the CVAP data, you find the blocks</p> <p>3 within each block group, and then it's just a</p> <p>4 matter of pulling the data.</p> <p>5 Q. Okay. How long does this process</p> <p>6 take?</p> <p>7 A. What do you mean, writing the code</p> <p>8 or running it?</p> <p>9 Q. A combination.</p> <p>10 A. Well, writing it took a lot of time.</p> <p>11 Running it, executing it, maybe like a minute for</p> <p>12 each district. It depends on the computer you</p> <p>13 have.</p> <p>14 Q. Do you have a sense of how long it</p> <p>15 took to write this?</p> <p>16 A. No.</p> <p>17 Q. Could it have been more than</p> <p>18 20 hours?</p> <p>19 A. To write this portion, almost</p> <p>20 certainly not.</p> <p>21 Q. More than 10 hours?</p> <p>22 A. Again, I don't think so for this</p> <p>23 portion.</p> <p>24 Q. How much -- how about to write the</p>	<p style="text-align: right;">Page 64</p> <p>1 A. If I could determine which of the</p> <p>2 approaches that I set forth was used by the</p> <p>3 redistricting data hub, I probably would have used</p> <p>4 it to check my work.</p> <p>5 Q. So you understand the districting</p> <p>6 data hub data to be reliable?</p> <p>7 A. Yes, insofar as -- or at least</p> <p>8 inasmuch as any of the CVAP data is reliable for</p> <p>9 precise calculation. I mean, like I said, there's</p> <p>10 different ways to do this apportionment. And I am</p> <p>11 sure that the numbers that they report are the</p> <p>12 result of applying whichever apportionment</p> <p>13 technique they employ. But that doesn't mean that</p> <p>14 they come without error margins or that they -- you</p> <p>15 know, they don't magically make the fact that</p> <p>16 you're dealing with samples disappear because</p> <p>17 nothing can make that disappear.</p> <p>18 Q. Returning to your report, the first</p> <p>19 one, at the bottom of -- starting at the bottom of</p> <p>20 page 19, you write that, quote, some block groups</p> <p>21 report higher numbers of citizens than the census</p> <p>22 reports of residents of voting age population. If</p> <p>23 we try to estimate the citizenship rate for the</p> <p>24 block group there, we will find a citizenship rate</p>



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<p style="text-align: right;">Page 65</p> <p>1 of in excess of 100 percent applied to the block</p> <p>2 groups. This leaves us a choice of using an</p> <p>3 obviously wrong citizenship rate or artificially</p> <p>4 capping the citizenship rate at 100 percent,</p> <p>5 decreasing the number of citizens below what is</p> <p>6 reported by the ACS.</p> <p>7 Are you saying here that the issue</p> <p>8 is the total ACS CVAP for a block group is larger</p> <p>9 than the total decennial census app for that block</p> <p>10 group?</p> <p>11 A. Yes.</p> <p>12 Q. And then you write that one method</p> <p>13 to calculate BCVAP is to cap the total CVAP number</p> <p>14 in each block group so it does not exceed the total</p> <p>15 VAP?</p> <p>16 A. Yes.</p> <p>17 Q. Is there a capping by race so not</p> <p>18 to -- so the BVAP would not exceed -- sorry -- so</p> <p>19 that the BCVAP would not exceed the BVAP or is it</p> <p>20 just the race-neutral total CVAP, total VAP?</p> <p>21 A. Well, in this approach that was</p> <p>22 outlined by the court, you take the total block</p> <p>23 group-wide citizenship rate and apply it. So you</p> <p>24 would cap this at 100 percent because the</p>	<p style="text-align: right;">Page 67</p> <p>1 consistently.</p> <p>2 Q. So it's applied consistently. So</p> <p>3 each race is capped.</p> <p>4 So white CVAP is capped by white</p> <p>5 VAP, black CVAP is capped by black VAP, et cetera,</p> <p>6 et cetera?</p> <p>7 A. Right. Because you can never have</p> <p>8 more citizens of voting age than you have voting</p> <p>9 age citizens. Citizens have to be a subset of</p> <p>10 voting age population. It can be a complete</p> <p>11 subset, but it has to be a subset.</p> <p>12 Q. Okay. If it's a proportional</p> <p>13 capping that's consistently applied across racial</p> <p>14 groups, then why does it produce a lower BCVAP</p> <p>15 number than it would if you didn't use the capped</p> <p>16 approach?</p> <p>17 A. Because instead of -- if you have</p> <p>18 a citizenship rate of 200 and a block that is</p> <p>19 within the district has a BVAP of 3, you're going</p> <p>20 to put 6 -- a BCVAP of 6 into the district instead</p> <p>21 of 3, which is what you would put in the capped</p> <p>22 approach.</p> <p>23 Q. But aren't you also lowering the</p> <p>24 white CVAP numbers and other races? So wouldn't</p>
<p style="text-align: right;">Page 66</p> <p>1 citizenship rate can't be higher than 100 percent</p> <p>2 and apply it to both groups.</p> <p>3 Q. Right.</p> <p>4 So I'm asking -- you're just capping</p> <p>5 total CVAP and total VAP. But are you also capping</p> <p>6 individual race numbers so that BCVAP wouldn't</p> <p>7 exceed BVAP as well?</p> <p>8 A. No.</p> <p>9 Q. Okay.</p> <p>10 A. That probably works to the favor of</p> <p>11 the BCVAP because the black citizen voting age</p> <p>12 population could be higher than plausible, but the</p> <p>13 overall could not.</p> <p>14 Q. Sorry. What do you mean by that?</p> <p>15 A. Actually, I don't think that's</p> <p>16 right, as I talk this through. Because if the</p> <p>17 overall citizenship rate is capped at 100, then</p> <p>18 when you look at a census block with -- let's say</p> <p>19 that the citizenship rate for the block group is</p> <p>20 200 percent, which can't be right. So you cap it</p> <p>21 at 100 percent. Then our hypothetical block with</p> <p>22 10 total voting -- with a VAP of 10 and a BVAP of</p> <p>23 3, would have a CVAP of 10 and a BCVAP of 3. So it</p> <p>24 is capped. That 100 percent rate is applied</p>	<p style="text-align: right;">Page 68</p> <p>1 the percentages even out?</p> <p>2 A. I don't think so.</p> <p>3 Q. Why not?</p> <p>4 A. Because the fraction -- because</p> <p>5 you're putting in 6 individuals. I would have to</p> <p>6 think through the math in my head. But let's</p> <p>7 say -- See if this is right. If you had 10 and 20,</p> <p>8 let's say, so 50 percent, and then you put in 6 and</p> <p>9 20, so you have 16 and 40. Yeah. It's not</p> <p>10 necessarily proportional. So if you have a</p> <p>11 district that starts out with a BCVAP estimate of</p> <p>12 10 and a CVAP estimate of 20, that's a 50/50</p> <p>13 district.</p> <p>14 Let's say you put in 6 black</p> <p>15 citizens of voting age, so that's 16, and 20 total</p> <p>16 citizens of voting age, that brings it to 40. That</p> <p>17 is going to be a 40 percent BVAP district -- or</p> <p>18 BCVAP district. Let's say instead you put in 3</p> <p>19 black citizens of voting age and 10 total CVAP,</p> <p>20 you'd have 13 and 30, which I don't think is</p> <p>21 40 percent. So I don't think that's how it works.</p> <p>22 Q. Okay. So we talked about with the</p> <p>23 capping that CVAP estimates are on the high end.</p> <p>24 Some block groups will have CVAP estimates below</p>



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<p style="text-align: right;">Page 69</p> <p>1 their actual value as well. Right?</p> <p>2 A. I'm sorry. You're going to have to</p> <p>3 rephrase that.</p> <p>4 Q. Sure.</p> <p>5 Some block groups will have CVAP</p> <p>6 estimates that are below the actual CVAP value.</p> <p>7 Right?</p> <p>8 A. Well, that's from the general</p> <p>9 uncertainty that comes from doing estimation, yeah.</p> <p>10 Q. Does the cap method remove any data</p> <p>11 for block groups with CVAP estimates that are too</p> <p>12 low?</p> <p>13 A. No. Because none of these block</p> <p>14 groups have less than zero percent. You can't come</p> <p>15 up with that. We just know that the citizenship</p> <p>16 rate can't be higher than 100 percent. So that</p> <p>17 cuts off some obviously wrong data.</p> <p>18 Q. So by only eliminating CVAP</p> <p>19 estimates at the high end, doesn't this cap method</p> <p>20 guarantee lower CVAP totals?</p> <p>21 A. It will be lower than if you allowed</p> <p>22 in an obviously wrong citizenship rate of 200 or</p> <p>23 300 percent, but it doesn't mean that it's going to</p> <p>24 be lower than the actual population.</p>	<p style="text-align: right;">Page 71</p> <p>1 occurring at the lower level at 100. This is just</p> <p>2 applying an accompanying cutoff -- I'm sorry.</p> <p>3 There already is a truncation occurring at zero.</p> <p>4 This is just applying accompanying truncation at</p> <p>5 100. If anything, the data without the truncation</p> <p>6 are -- without the upper truncation are going to</p> <p>7 skew high in the CVAP numbers.</p> <p>8 Q. This is truncation near zero at the</p> <p>9 block group level?</p> <p>10 A. Correct.</p> <p>11 Q. Do you have any understanding of how</p> <p>12 frequent there is a population estimate under zero</p> <p>13 at the block group level?</p> <p>14 A. Well, looking at the table</p> <p>15 immediately above it, block group zero -- these are</p> <p>16 all within illustrative District 7. Block group</p> <p>17 0111001 has a CVAP estimate of zero with a margin</p> <p>18 of error of 18 and a 95 percent margin of error of</p> <p>19 22. The same is true of 0002002. The CVAP</p> <p>20 estimate for block group 0023003 is 15, plus or</p> <p>21 minus 35 individuals. So that would cross the zero</p> <p>22 threshold. 0004002, likewise. 0010002, likewise.</p> <p>23 0107051, likewise. It's true of the other four in</p> <p>24 this table and it probably goes on for some time.</p>
<p style="text-align: right;">Page 70</p> <p>1 Q. But it guarantees lower CVAP totals</p> <p>2 for -- at a district level? Yeah. That's it, at a</p> <p>3 district level.</p> <p>4 A. It guarantees lower CVAP levels than</p> <p>5 if you used obviously wrong data, yes. It doesn't</p> <p>6 mean that it's going to be lower than the total</p> <p>7 population, the actual total citizen voting age</p> <p>8 population which we don't know.</p> <p>9 Q. Okay. But I mean, these CVAP</p> <p>10 estimates, don't they kind of even out? You have</p> <p>11 high CVAP estimates and you have low CVAP estimates</p> <p>12 and over a large period of geography. Don't they</p> <p>13 balance each other?</p> <p>14 A. The CVAP estimates are artificially</p> <p>15 truncated already at zero percent. So this is just</p> <p>16 putting an upper bound on it. Even if you have</p> <p>17 like -- So as it says on page 14 of my report, The</p> <p>18 census bureau instructs that if a population</p> <p>19 estimate is near zero, the calculated value of the</p> <p>20 lower confidence bound may be less than zero.</p> <p>21 However, a negative number of people does not make</p> <p>22 sense, so the lower confidence bound should be</p> <p>23 reported as zero instead.</p> <p>24 So that truncation is already</p>	<p style="text-align: right;">Page 72</p> <p>1 This is just 10 of them.</p> <p>2 Q. Okay. Does this census bureau</p> <p>3 instruction about capping population estimates at</p> <p>4 the low end and zero apply to -- so this also</p> <p>5 applies to the lower confidence bound?</p> <p>6 A. That's the bottom half of the error</p> <p>7 margin.</p> <p>8 Q. Okay. How does it affect on the --</p> <p>9 the lower confidence bound affect the total point</p> <p>10 estimate at the aggregated level to the district</p> <p>11 level?</p> <p>12 A. Well, if you're taking the position</p> <p>13 that putting a cap at 100 percent, which is another</p> <p>14 level at which going beyond makes no sense, skews</p> <p>15 things downward, then applying this perfectly</p> <p>16 sensible cap at zero percent would also skew things</p> <p>17 upward. Because we aren't incorporating a</p> <p>18 possibility that in this block group the population</p> <p>19 might be negative 10, even though that would</p> <p>20 technically fall within the 90 or 95 percent</p> <p>21 confidence interval.</p> <p>22 Q. Right.</p> <p>23 So I guess -- I think the</p> <p>24 differential here is the census bureau's cap at the</p>



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<p style="text-align: right;">Page 73</p> <p>1 low end is about confidence bound, and your cap on</p> <p>2 the high end is the point estimate. Correct?</p> <p>3 A. Well, that is true, but it goes to</p> <p>4 the degree of confidence we have in our estimates.</p> <p>5 We're not allowing the possibility that in these</p> <p>6 districts it would go lower. And the general point</p> <p>7 is you don't consider options that are absurd, like</p> <p>8 a 200 percent citizen voting age population rate.</p> <p>9 I don't think it improves our estimates to allow</p> <p>10 this citizen voting age population to be</p> <p>11 200 percent, but that's why I calculated both ways.</p> <p>12 I guess people could disagree with that.</p> <p>13 Q. It is your understanding that the</p> <p>14 census bureau's guidance to cap the lower bound at</p> <p>15 zero impacts the point estimate?</p> <p>16 A. No. But it would skew the degree of</p> <p>17 certainty we have when we aggregate the error</p> <p>18 margins to the district level.</p> <p>19 Q. All right. Let's talk about the</p> <p>20 second method you employ, mimicking this</p> <p>21 aggregation approach used for estimating political</p> <p>22 outcomes in split precincts. That's in the middle</p> <p>23 of page 20 in your first report.</p> <p>24 So for this method, Method 2, you</p>	<p style="text-align: right;">Page 75</p> <p>1 group.</p> <p>2 What do you mean by the relevant</p> <p>3 voting age population contained in the blocks?</p> <p>4 A. Well, as I describe in the next</p> <p>5 paragraph, one relevant voting age population. So</p> <p>6 if you just kind of do what we did in the last</p> <p>7 analysis and take the total CVAP rate and apply</p> <p>8 that -- the total rate and apply that to all racial</p> <p>9 groups uniformly. But as I say in the following</p> <p>10 sentence, you can also weight the BCVP and CVAP</p> <p>11 separately. So the relevant voting -- you have to</p> <p>12 do two calculations in the relevant voting age</p> <p>13 population, and it would be different for each</p> <p>14 calculation.</p> <p>15 Q. When you say take the total CVAP</p> <p>16 rate, are you saying CVAP rate for all citizens in</p> <p>17 the district regardless of race or are you talking</p> <p>18 about CVAP -- taking different CVAP percentages</p> <p>19 based on the racial group?</p> <p>20 A. I do it both ways. The first way</p> <p>21 would say, okay, 80 percent of the voting age</p> <p>22 population in this block group lives within the</p> <p>23 district. So we're going to apply that 80 percent</p> <p>24 ratio to each grouping. This is the way that</p>
<p style="text-align: right;">Page 74</p> <p>1 are only disaggregating CVAP to VAP when you have a</p> <p>2 census block group that is split by the</p> <p>3 illustrative district boundaries?</p> <p>4 A. Correct.</p> <p>5 Q. And you're using the ACS BCVP</p> <p>6 number or blocks within block groups wholly</p> <p>7 contained within the illustrative district</p> <p>8 boundaries?</p> <p>9 A. Correct.</p> <p>10 Q. When you apply CVAP to VAP using</p> <p>11 this Method 2 approach, are you disaggregating CVAP</p> <p>12 to total VAP or are you disaggregating CVAP to VAP</p> <p>13 by race?</p> <p>14 A. I do it both ways.</p> <p>15 Q. Okay. So you describe your</p> <p>16 approach. The approach is as follows: Take the</p> <p>17 census blocks within the split unit, paren, using</p> <p>18 political data, a precinct, for our purposes here a</p> <p>19 block group, close parens, and divide them between</p> <p>20 blocks that fall within the district and blocks</p> <p>21 that fall outside of the district. Examine the</p> <p>22 percentage of the relevant voting age population</p> <p>23 contained in the blocks within the district and</p> <p>24 then apply that percentage to the CVAP of the block</p>	<p style="text-align: right;">Page 76</p> <p>1 Dr. Oskooii's colleague, Dr. Collingwood, estimated</p> <p>2 CVAP in the Washington case we were in together.</p> <p>3 You can also do it, however, -- and</p> <p>4 I think this is what Dr. Oskooii is suggesting in</p> <p>5 his hypothetical later in his report -- say</p> <p>6 80 percent of the total population lives within the</p> <p>7 district so we're going to assign 80 percent of the</p> <p>8 total CVAP of block groups to the district.</p> <p>9 However, only 50 percent of black voting age</p> <p>10 population lives within the district. So that's</p> <p>11 the amount of black citizen voting age population</p> <p>12 in the block group that we will assign to the</p> <p>13 district.</p> <p>14 Q. Okay. So if we apply this metric</p> <p>15 assuming that both the BCVP and total CVAP are</p> <p>16 apportioned similarly to the VAP within the</p> <p>17 district, we get BCVPs of 50.4 percent using the</p> <p>18 2020 data, 49.2 percent using the 2021 data, and</p> <p>19 48.3 percent using the 2022 data.</p> <p>20 Which way is -- That's BCVP to</p> <p>21 total VAP not considering the VAP by race?</p> <p>22 A. Correct. That's the way that</p> <p>23 Dr. Collingwood did it in the Washington case. And</p> <p>24 I figured if I didn't do it that way in this case</p>

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<p style="text-align: right;">Page 77</p> <p>1 someone would yell at me about it, so I tried it</p> <p>2 that way.</p> <p>3 Q. Okay. And if you'd turn to</p> <p>4 Exhibit 2, page 4, of your supplemental report. Is</p> <p>5 the method you just talked about what you labeled</p> <p>6 here as Method 2, Pop Wt period?</p> <p>7 A. Uh-huh.</p> <p>8 Q. And does that stand for population</p> <p>9 weighted?</p> <p>10 A. Correct.</p> <p>11 Q. Okay. And then just going back to</p> <p>12 the -- You might want to hold that page. But if we</p> <p>13 go back to the first report, page 20, bottom of</p> <p>14 page 20, the sentence says, If we weight the BCVP</p> <p>15 and CVAP separately, the results are 50.9 percent,</p> <p>16 49.7 percent, and 48.7 percent using the 2020,</p> <p>17 2021, and 2022 data respectively.</p> <p>18 So is that applying CVAP to VAP by</p> <p>19 race, that approach?</p> <p>20 A. Correct.</p> <p>21 Q. Okay. And is that -- looking at the</p> <p>22 Table 1 on page 4 of your supplemental report, is</p> <p>23 that the Method 2 weighted separate?</p> <p>24 A. Yes. And I believe that's what</p>	<p style="text-align: right;">Page 79</p> <p>1 age populations within the blocks; not performing</p> <p>2 different calculations by race, because that wasn't</p> <p>3 included in the court's analysis.</p> <p>4 Q. Okay. So is it fair to say that</p> <p>5 Full Method 1 and Cap Method 1 are more similar to</p> <p>6 the disaggregation approach you applied in Method 2</p> <p>7 population weighted than the Method 2 weighted</p> <p>8 separately approach?</p> <p>9 A. I think as phrased that's exactly</p> <p>10 right.</p> <p>11 Q. Okay. Do you have a preference</p> <p>12 between the population weighted and the weighted</p> <p>13 separately versions of Method 2?</p> <p>14 A. A personal preference?</p> <p>15 Q. Which do you think yields a more</p> <p>16 accurate result?</p> <p>17 A. Well, that I don't know. Because</p> <p>18 they all reveal functionally the same result, and</p> <p>19 it's all relying on untestable assumptions about</p> <p>20 the distribution of citizenship and</p> <p>21 non-citizenship.</p> <p>22 Left to my own devices I'd probably</p> <p>23 weight separately; but given how Dr. Oskooii's</p> <p>24 colleague did it in Washington and given how the</p>
<p style="text-align: right;">Page 78</p> <p>1 Dr. Oskooii is suggesting in his rebuttal report.</p> <p>2 Q. Okay. And you're saying that Full</p> <p>3 Method 1 and Cap Method 1 apply a similar CVAP to</p> <p>4 VAP by race disaggregation as the method to</p> <p>5 weighted separate approach?</p> <p>6 A. Can you maybe break that down?</p> <p>7 Q. Yes. Okay.</p> <p>8 So you said Method 2 weighted</p> <p>9 separately disaggregates CVAP to VAP by racial</p> <p>10 group at the block level. The Full Method 1 and</p> <p>11 Cap Method 1 we discussed before where you</p> <p>12 disaggregate CVAP to all blocks, not just split</p> <p>13 block groups.</p> <p>14 In Full Method 1 and Cap Method 1</p> <p>15 are you applying a method similar to Method 2</p> <p>16 population weighted or are you disaggregating CVAP</p> <p>17 to total VAP or are you applying the method you did</p> <p>18 in Method 2 weighted separately, where you apply</p> <p>19 CVAP to VAP by race?</p> <p>20 A. The Full Method 1 versus Cap Method</p> <p>21 1 is what we were talking about earlier where I was</p> <p>22 following the procedure outlined by the court. So</p> <p>23 I did it overall statewide -- or overall block</p> <p>24 group-wide CVAP rate applied to all reported voting</p>	<p style="text-align: right;">Page 80</p> <p>1 court handled it earlier in the 11th Circuit, you</p> <p>2 know, from a legal perspective that might counsel</p> <p>3 towards doing a uniform assumption. I would say</p> <p>4 there's a reason to do all of them and take some</p> <p>5 comfort in the fact that they all yield the same</p> <p>6 answer more or less.</p> <p>7 Q. By doing the Method 2 weighted</p> <p>8 separately approach, aren't you considering more</p> <p>9 data, you're considering that by race instead of</p> <p>10 just total VAP? Right? So isn't that method</p> <p>11 taking into account higher granularity of data?</p> <p>12 A. You're assuming, though, that the</p> <p>13 rates are going to be different than the overall</p> <p>14 allocation of VAP. Like I said, at the end of the</p> <p>15 day you're coming -- all coming up with estimates</p> <p>16 that are within each other's error margins. So I</p> <p>17 don't know that it really changes things that much.</p> <p>18 If you'd done something one way and</p> <p>19 got, you know, 42 percent and another way and</p> <p>20 gotten 78 percent, then you have a more interesting</p> <p>21 discussion. I just don't think it's that</p> <p>22 interesting. I'm mostly doing these different</p> <p>23 approaches to try to cover my bases so I don't get</p> <p>24 the, you know, well, why didn't you did this</p>



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<p style="text-align: right;">Page 81</p> <p>1 question.</p> <p>2 Q. So when you say accounting for</p> <p>3 differences in the overall allocation of VAP that</p> <p>4 you're making assumptions, aren't you -- wouldn't</p> <p>5 you be using the actual census data, VAP census</p> <p>6 data by race? So what are the assumptions you</p> <p>7 would have to make?</p> <p>8 A. You would have to assume that the</p> <p>9 BCVAP is portioned similarly to the BVAP.</p> <p>10 Q. So you would have to assume that the</p> <p>11 citizenship rate is constant among the black voting</p> <p>12 age population? Is that what you're saying is the</p> <p>13 assumption?</p> <p>14 A. Right.</p> <p>15 Q. Okay.</p> <p>16 A. Well, or you'd have to assume it's</p> <p>17 the same in the two chunks. It wouldn't</p> <p>18 necessarily have to be constant, but in the</p> <p>19 aggregate it would have to be the same.</p> <p>20 Q. But you would have to make that kind</p> <p>21 of assumption if you disaggregated CVAP to total</p> <p>22 VAP as well. Right?</p> <p>23 A. That's right. The outcome with --</p> <p>24 the whole point is that this disaggregation,</p>	<p style="text-align: right;">Page 83</p> <p>1 other than black in overall CVAP, but here we are</p> <p>2 just calculating the BCVAP and total CVAP. So it's</p> <p>3 really just an assumption about how the black</p> <p>4 citizenship voting age population is allocated, if</p> <p>5 it's allocated proportionally to the VAP or if it's</p> <p>6 allocated proportionally to the BVAP.</p> <p>7 (Discussion off the record.)</p> <p>8 Q. So if you're allocating the --</p> <p>9 MR. GENBERG: Actually, maybe we'll</p> <p>10 just take a quick break.</p> <p>11 (Recess taken.)</p> <p>12 (Court Reporter Beth Higgins</p> <p>13 reported the remainder of the proceedings.)</p> <p>14 BY MR. GENBERG:</p> <p>15 Q. Dr. Trende, did you discuss the</p> <p>16 substance of the -- your testimony with counsel</p> <p>17 during break?</p> <p>18 A. No.</p> <p>19 Q. When you are talking about here CVAP</p> <p>20 to VAP disaggregation, you refer to total CVAP,</p> <p>21 were you talking about disaggregating total CVAP</p> <p>22 to -- to VAP in your disaggregation methods?</p> <p>23 A. I don't understand your question.</p> <p>24 Q. Total CVAP as opposed to BCVAP.</p>
<p style="text-align: right;">Page 82</p> <p>1 aggregation approach no matter what you do comes</p> <p>2 with untestable assumptions that add additional</p> <p>3 uncertainty to your error margin, which comes just</p> <p>4 from the fact that you are sampling.</p> <p>5 Q. And the CVAP to total VAP as an</p> <p>6 additional assumption, which is that race is</p> <p>7 allocated evenly across the block group. Correct?</p> <p>8 A. The race -- Instead of races</p> <p>9 allocated in the same way as the VAP, it assumes</p> <p>10 that race is allocated in the same way as -- I'm</p> <p>11 sorry. Instead of assuming that race is allocated</p> <p>12 at citizenship level the same rate as at the voting</p> <p>13 age population level, you're assuming it's</p> <p>14 allocated at the same rate as the overall voting</p> <p>15 age population as opposed to just black voting age</p> <p>16 population. It's just a different assumption, but</p> <p>17 it's still an uncontestable one. That has</p> <p>18 additional uncertainty beyond the reported error</p> <p>19 margins.</p> <p>20 Q. And you're assuming that race is the</p> <p>21 same in each block within the block group doing the</p> <p>22 total VAP method. Right?</p> <p>23 A. Yeah. And that might be a more a</p> <p>24 stronger assumption if we were interested in groups</p>	<p style="text-align: right;">Page 84</p> <p>1 A. It depends on the method.</p> <p>2 Q. Okay. So there are certain methods</p> <p>3 where you start with total CVAP.</p> <p>4 Which methods are those?</p> <p>5 A. Well, they all calculate the total</p> <p>6 CVAP.</p> <p>7 Q. Okay. And for what purpose?</p> <p>8 A. Because you have to know the -- If</p> <p>9 you're trying to figure out the BCVAP percentage of</p> <p>10 the district, you have to know both the numerator</p> <p>11 and the denominator.</p> <p>12 Q. Okay. So you separately calculate</p> <p>13 a -- a numerator and a denominator. Is that</p> <p>14 correct?</p> <p>15 A. Yes.</p> <p>16 Q. And when you calculate the</p> <p>17 numerator, do you use BCVAP in all cases?</p> <p>18 A. Yes.</p> <p>19 Q. Okay. And in all cases -- Okay.</p> <p>20 Got it. Strike that.</p> <p>21 In all cases, do you -- does the</p> <p>22 denominator start with total CVAP?</p> <p>23 A. Yes.</p> <p>24 Q. And in all cases, does the</p>



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<p style="text-align: right;">Page 85</p> <p>1 denominator disaggregate total CVAP to total VAP?</p> <p>2 A. I -- I think I've described in -- at</p> <p>3 length the different ways that, ah, the</p> <p>4 disaggregation takes place in different areas. I</p> <p>5 can reiterate them, but I -- I --</p> <p>6 Q. Well --</p> <p>7 A. The shorthand you're using, I don't</p> <p>8 understand.</p> <p>9 Q. Let's just break it down by</p> <p>10 numerator and denominator here so -- to make sure</p> <p>11 we're on the same page.</p> <p>12 For the Full Method 1 Caps and</p> <p>13 Population Weighted where you said that was going</p> <p>14 to be disaggregated to VAP, would the numerator for</p> <p>15 that one be BCVAP to VAP to calculate the --</p> <p>16 calculate the BCVAP number?</p> <p>17 A. For that one, the total CVAP rate</p> <p>18 for the block group is applied to the black voting</p> <p>19 age population and the voting age population</p> <p>20 following the technique that I had read in the</p> <p>21 case.</p> <p>22 Q. Is there -- In any of these methods,</p> <p>23 do you on- -- only use total CVAP and disaggregate</p> <p>24 total CVAP to VAP and disregard the BCVAP number?</p>	<p style="text-align: right;">Page 87</p> <p>1 numbers into the district-wide denominator from the</p> <p>2 blocks that are contained within the district</p> <p>3 boundary.</p> <p>4 Q. Okay. So for Method 1, do you</p> <p>5 consider the black citizen voting age population?</p> <p>6 A. For metric -- for Method 1 --</p> <p>7 And the only difference between</p> <p>8 Method 1 and Method 2, to keep this simple, is that</p> <p>9 Method 2 would cap the citizenship rate at a</p> <p>10 hundred percent, following the lead of the census</p> <p>11 to discard nonsensical potential outcomes.</p> <p>12 So with that in mind, the basic</p> <p>13 technique is the same.</p> <p>14 For the BCVAP, you would look at the</p> <p>15 BVAPs of each block, and you would apply the</p> <p>16 citizenship rate for the block group to those</p> <p>17 BCVAPs, discard the blocks that are not within the</p> <p>18 district, and aggregate them.</p> <p>19 Q. Okay. When you say "the citizenship</p> <p>20 rate for the block group," are you talking about</p> <p>21 the total CVAP percentage number?</p> <p>22 A. The number we --</p> <p>23 It's the same rate that you use for</p> <p>24 the denominator, so it is the overall citizenship</p>
<p style="text-align: right;">Page 86</p> <p>1 A. See, I don't understand what you</p> <p>2 mean when you say "disaggregate total CVAP to VAP."</p> <p>3 Q. Well, if you have a split block</p> <p>4 group, how do you determine the number of citizens</p> <p>5 in -- in the area that's within the district?</p> <p>6 A. Which technique?</p> <p>7 Q. Is there a difference between the</p> <p>8 techniques for determining the total citizens?</p> <p>9 A. Yes.</p> <p>10 Q. There is. Okay.</p> <p>11 Let's start with the Full Method 1.</p> <p>12 A. Okay. You would look at the citizen</p> <p>13 voting age population of the block group total and</p> <p>14 the voting age population of the block group total</p> <p>15 and see what percentage -- what percentage of the</p> <p>16 VAP of the block group are citizens.</p> <p>17 Then you would look at all the</p> <p>18 blocks within the block group and you would apply</p> <p>19 that percentage to the voting age population of the</p> <p>20 blocks to estimate the number of citizens of voting</p> <p>21 age within each block. You then discard the blocks</p> <p>22 that are not within the district, because the</p> <p>23 districts don't cut census blocks. You can do that</p> <p>24 cleanly. And then you would then aggregate the</p>	<p style="text-align: right;">Page 88</p> <p>1 rate of the block group.</p> <p>2 Q. Okay. Why are you using the total</p> <p>3 citizenship rate percentage as opposed to the black</p> <p>4 citizen voting age?</p> <p>5 A. Because that is the technique that</p> <p>6 was described in the district court opinion that I</p> <p>7 was following.</p> <p>8 Q. Okay.</p> <p>9 A. If one of your experts had thought</p> <p>10 maybe we can carry our burden by estimating this</p> <p>11 separately, I would have been interested to see</p> <p>12 that outcome; but I was trying not to do things</p> <p>13 that didn't have some sort of support either in</p> <p>14 prior cases in which I have worked or in</p> <p>15 instructions from the census or in court records.</p> <p>16 Q. Okay. So using the total citizen</p> <p>17 voting age population percentage, you are assuming</p> <p>18 for the cases for the purpose of your calculation</p> <p>19 that that citizenship rate is the same regardless</p> <p>20 of the race?</p> <p>21 A. That -- that's right. Regardless of</p> <p>22 race, it's the same as the block-group-wide</p> <p>23 citizenship rate.</p> <p>24 Q. Do you have an opinion about whether</p>



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<p style="text-align: right;">Page 89</p> <p>1 the citizenship rate for non-Hispanic white people</p> <p>2 and people with Hispanic ancestry in the Huntsville</p> <p>3 region is similar?</p> <p>4 A. No.</p> <p>5 Q. Do you have an opinion about whether</p> <p>6 the citizenship rate is the same for white and</p> <p>7 black people in the Huntsville region?</p> <p>8 A. Non-Hispanic white and black people?</p> <p>9 Q. Non-Hispanic white and black people.</p> <p>10 A. No.</p> <p>11 Q. Do you have an opinion about whether</p> <p>12 the citizenship rate is the same for non-Hispanic</p> <p>13 white people and Asian-American people in the</p> <p>14 United States?</p> <p>15 A. In the United States?</p> <p>16 Q. Sorry. In -- in Huntsville.</p> <p>17 A. No.</p> <p>18 Q. Assuming there are significant</p> <p>19 differences in citizenship rates among different</p> <p>20 races and ethnicities, how would that affect your</p> <p>21 calculations?</p> <p>22 A. It would depend how much the BCVP</p> <p>23 rate deviated from the overall CVAP rate.</p> <p>24 Q. Assuming the black citizenship rate</p>	<p style="text-align: right;">Page 91</p> <p>1 everyone agreed on; but I -- I honestly don't</p> <p>2 remember. I know that's when I looked at</p> <p>3 Mr. Collingwood's code -- or Dr. Collingwood's code</p> <p>4 and took apart his eiPackage to see how it worked,</p> <p>5 but I can't remember if that actually ended up</p> <p>6 becoming at all an issue in the case.</p> <p>7 Like I said, the point here is that</p> <p>8 no matter how you do this, and there are different</p> <p>9 techniques for doing this, you have to do some type</p> <p>10 of this estimation. We shouldn't lose sight of the</p> <p>11 forest for the trees.</p> <p>12 Every technique for estimating the</p> <p>13 CVAP on a district-wide basis when they are split</p> <p>14 block groups comes up with a way of apportioning</p> <p>15 the block groups that relies on some level of</p> <p>16 assumption about the distribution of citizenship,</p> <p>17 ah, in the population, and that's an untestable</p> <p>18 assumption.</p> <p>19 Q. So let's just run through your --</p> <p>20 your methods again on Exhibit 2, page 4.</p> <p>21 So the Full Method 1, did you use</p> <p>22 the total CVAP percentage to disaggregate to the</p> <p>23 block level on that method?</p> <p>24 A. Yes, because that follows the</p>
<p style="text-align: right;">Page 90</p> <p>1 was significantly higher than the overall</p> <p>2 citizenship rate in the Huntsville region, what</p> <p>3 effect would that have on your calculations?</p> <p>4 A. Ah, the BCVP point estimate would</p> <p>5 be at least somewhat higher than using this</p> <p>6 technique.</p> <p>7 Q. In what cases have you previously</p> <p>8 disaggregated total CVAP percentage to blocks?</p> <p>9 A. On my work in the Washington case.</p> <p>10 Q. And what specifically did you do in</p> <p>11 the Washington case where you applied that?</p> <p>12 A. We were looking at the BCVPs of</p> <p>13 districts -- or the Hispanic CVAP of districts.</p> <p>14 Q. And for what stage of the case did</p> <p>15 you participate?</p> <p>16 A. I was in the remedial phase.</p> <p>17 Q. And did the Court opine on the -- on</p> <p>18 your use of total CVAP in deriving a point estimate</p> <p>19 for HCVAP percentage?</p> <p>20 A. I don't think so, 'cause I don't</p> <p>21 think -- I don't think we actually, ah, came out</p> <p>22 and challenged their numbers.</p> <p>23 We did derive some of our own CVAP</p> <p>24 estimates for districts, but, uhm -- which I think</p>	<p style="text-align: right;">Page 92</p> <p>1 technique described in the court case.</p> <p>2 Q. Okay. And when you disaggregated to</p> <p>3 blocks, did you disaggregate to VAP or to</p> <p>4 BVAP?</p> <p>5 A. You keep using this term</p> <p>6 "disaggregated to VAP or BVAP" that I'm really not</p> <p>7 familiar with. I used the overall popu- -- CVAP</p> <p>8 population rate for both VAP and BVAP.</p> <p>9 Q. So, okay. You applied the total</p> <p>10 CVAP percentage to -- to what in the blocks? To</p> <p>11 the VAP in the blocks or to BVAP in the blocks?</p> <p>12 A. Both.</p> <p>13 Q. Okay.</p> <p>14 A. Because, again, that follows the --</p> <p>15 what I read in the case.</p> <p>16 Q. Okay. And Method 2, Population</p> <p>17 Weighted, did -- in that method you applied total</p> <p>18 CVAP percentage to VAP and BVAP in the blocks?</p> <p>19 A. Right. In that case, I was</p> <p>20 following the approach that Dr. Collingwood had</p> <p>21 taken in the Washington case.</p> <p>22 Q. Okay. And the method to weigh and</p> <p>23 separate in that one, you're applying total CVAP</p> <p>24 percentage to VAP and BVAP, as well?</p>



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<p style="text-align: right;">Page 93</p> <p>1 A. No. That's not right.</p> <p>2 Q. To only -- only BVAP in that one?</p> <p>3 A. I don't think that's right, either.</p> <p>4 Q. Okay. Well, please explain.</p> <p>5 A. In that method, you're looking at</p> <p>6 the --</p> <p>7 For the denominator, you're looking</p> <p>8 at the percentage of the voting age population that</p> <p>9 is contained within blocks in the district and</p> <p>10 assuming that citizenship is apportioned the same</p> <p>11 way.</p> <p>12 For -- for the numerator, you're</p> <p>13 looking at what percentage of the black voting age</p> <p>14 population in the block group resides in census</p> <p>15 blocks within the district and assuming that the</p> <p>16 citizenship voting age -- the black citizenship</p> <p>17 voting age population is distributed at the same</p> <p>18 rate.</p> <p>19 Q. For Method 2, Weighted Separate, do</p> <p>20 you -- you apply the total CVAP percentage number</p> <p>21 to the blocks?</p> <p>22 A. I don't understand your question.</p> <p>23 Q. Well, in Full Method 1, Capped</p> <p>24 Method 1, Method 2, Population Weighted, you said</p>	<p style="text-align: right;">Page 95</p> <p>1 groups is contained within the district, then you</p> <p>2 would say ten citizens of voting age within the</p> <p>3 block group reside in that portion of the block</p> <p>4 group contained within the district.</p> <p>5 Q. Okay. And are you using for that</p> <p>6 calculation the black citizen voting age population</p> <p>7 percentage at the block group level?</p> <p>8 A. No. You're looking at the total</p> <p>9 number of black citizens of voting age at the block</p> <p>10 group.</p> <p>11 Q. Okay.</p> <p>12 A. You are then looking at the</p> <p>13 percentage of the voting age population contained</p> <p>14 within the block group -- or contained within the</p> <p>15 district within that block group and applying that</p> <p>16 percentage to the citizen voting age population</p> <p>17 estimate, which, of course, has a huge error margin</p> <p>18 at the vo- -- at the census block level typically.</p> <p>19 Q. Okay. Okay. So in that method,</p> <p>20 you're accounting for the black citizen voting age</p> <p>21 population percentage and the black voting age</p> <p>22 population in the blocks?</p> <p>23 A. Can you repeat that, please?</p> <p>24 Q. In that -- in this method, Method 2,</p>
<p style="text-align: right;">Page 94</p> <p>1 you applied the total CVAP percentage number to</p> <p>2 blocks.</p> <p>3 Did you do that also in Method 2,</p> <p>4 Weighted Separate?</p> <p>5 A. Oh. Once again, no. In Method 2,</p> <p>6 Weighted Separate, you look at the total percentage</p> <p>7 of the voting age population in the block group</p> <p>8 that lives in blocks within the district and blocks</p> <p>9 without the dis- -- outside the district. Let's</p> <p>10 say it's 45 percent.</p> <p>11 Q. Uh-huh.</p> <p>12 A. You would then assume that the</p> <p>13 citizen voting age population is distributed the</p> <p>14 same way. So if the total CVAP of the block group</p> <p>15 is a hundred, you would say 45 citizens of voting</p> <p>16 age total live within the district or the portion</p> <p>17 of that block group contained within the district.</p> <p>18 You would then do a separate</p> <p>19 calculation for the numerator. You would look at</p> <p>20 the distribution of the black voting age population</p> <p>21 in the block group across census groups -- census</p> <p>22 blocks. And let's say the total CVAP estimate for</p> <p>23 the black population in the block group is 20 and</p> <p>24 half of the black voting age population in block</p>	<p style="text-align: right;">Page 96</p> <p>1 Population Weighted, you're accounting for the</p> <p>2 black citizen voting age population percentage at</p> <p>3 the census block group level and you're accounting</p> <p>4 for the black voting age population number given by</p> <p>5 the census at the block level?</p> <p>6 A. Correct. And, of course, even that</p> <p>7 latter thing has some uncertainty accompanying it</p> <p>8 due to differential privacy.</p> <p>9 Q. Okay. And just another question on</p> <p>10 citizenship rates.</p> <p>11 Do you have opinion on the --</p> <p>12 whether the citizenship rate for black people and</p> <p>13 people with Hispanic ancestry in the Huntsville</p> <p>14 region are similar?</p> <p>15 A. I haven't looked at that.</p> <p>16 Q. Okay. Just returning to the</p> <p>17 Method 1 Capped version where we talked about --</p> <p>18 you talked about that the citizenship -- citizen</p> <p>19 voting age populations above the -- the VAP numbers</p> <p>20 were -- were obviously wrong.</p> <p>21 When you -- you make that statement,</p> <p>22 are you taking into account that the citizen voting</p> <p>23 age population dataset is a different dataset than</p> <p>24 the -- the voting age population dataset? I mean,</p>



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<p style="text-align: right;">Page 97</p> <p>1 it's taken at a different time period?</p> <p>2 A. That was, like --</p> <p>3 Q. Okay. I'll rephrase.</p> <p>4 A. Apologies to Faulkner, but can</p> <p>5 you --</p> <p>6 Q. Okay. Voting age population is</p> <p>7 derived from the 2020 decennial census. Right?</p> <p>8 A. Correct.</p> <p>9 Q. And the ACS CVAP data is monthly</p> <p>10 surveys over a five-year period. Right?</p> <p>11 A. Right.</p> <p>12 Q. So they are -- these -- This data is</p> <p>13 accumulated at different time periods. Correct?</p> <p>14 A. Correct.</p> <p>15 Q. And it's -- is it fair to say that</p> <p>16 people may have moved between '20 and 2022 or had</p> <p>17 babies during that time period?</p> <p>18 A. It's possible. And I think if you</p> <p>19 were using the one-year estimates, that to a</p> <p>20 certain degree might be a solid, ah, analysis or</p> <p>21 anchor; but the 2022 data is centered on the same</p> <p>22 year as the census. You get half after, half</p> <p>23 before. So whatever the rate is of change -- You</p> <p>24 know, if the citizen population is declining, which</p>	<p style="text-align: right;">Page 99</p> <p>1 Q. And what is your process to employ</p> <p>2 Method 2 manually?</p> <p>3 A. Uhm, you look at the block groups</p> <p>4 that are separated, you take the CVAPs and VAPs</p> <p>5 for -- or the -- Sorry. Yeah, you take the CVAP</p> <p>6 estimate at the block group level and the BCVP</p> <p>7 estimate at the block group level. You look at the</p> <p>8 blocks that are contained within the block group</p> <p>9 and look at the total voting age population and the</p> <p>10 total black voting age population.</p> <p>11 Of those blocks, you look at the</p> <p>12 ones that are contained within the district, look</p> <p>13 at the voting age population and the black voting</p> <p>14 age population; you get the appropriate ratios, and</p> <p>15 you assign them to the total CVAP within the</p> <p>16 district, uhm -- or within the block group and add</p> <p>17 that total to the district total.</p> <p>18 Q. Okay. And the only reason to employ</p> <p>19 the manual approach to Method 2 is that the</p> <p>20 eiExpand package discards block groups with less</p> <p>21 than two percent of the population that are</p> <p>22 contained within the district?</p> <p>23 A. Yes. At least that's the only</p> <p>24 reason I could think of to do it both ways.</p>
<p style="text-align: right;">Page 98</p> <p>1 would be kind of weird, but if the citizen</p> <p>2 population were declining, you would have -- you</p> <p>3 know, half of it would be higher than 2020 because</p> <p>4 it would be taken from before 2020; half of it</p> <p>5 would be lower because it would be taken after.</p> <p>6 Q. So in your opinion, it's not</p> <p>7 possible that the ACS taking a different time</p> <p>8 period could account for the citizen voting age</p> <p>9 population being larger than the voting age</p> <p>10 population in some blocks?</p> <p>11 A. Oh, I didn't say it wasn't possible.</p> <p>12 I said I don't find it a terribly convincing</p> <p>13 argument, especially when you're getting to, like,</p> <p>14 percentages of 200 -- you know, it's a 200 percent</p> <p>15 citizenship rate. I mean, I guess it's possible</p> <p>16 that half the population of the block group might</p> <p>17 have exited, but I just don't think that's terribly</p> <p>18 likely.</p> <p>19 Q. Okay. All right. So Method 2, the,</p> <p>20 you know, Population Weighted and Weighted</p> <p>21 Separately, those can be applied manually or by</p> <p>22 employing the eiExpand package in R. Correct?</p> <p>23 A. Correct.</p> <p>24 (Discussion held off the record.)</p>	<p style="text-align: right;">Page 100</p> <p>1 The other reason to do it is it --</p> <p>2 then someone -- If you don't do eiExpand as well,</p> <p>3 someone might yell at you for not using this</p> <p>4 package, so it covers the bases.</p> <p>5 Q. Looking at the Table 1 that you have</p> <p>6 up, does the eiExpand, Separate, reflect the</p> <p>7 Method 2, Weighted Separate approach?</p> <p>8 A. Yes.</p> <p>9 Q. Okay. And eiExpand reflects the</p> <p>10 Method 2, Population Weighted, approach?</p> <p>11 A. That's right.</p> <p>12 Q. Could we go to the bottom of</p> <p>13 page 20?</p> <p>14 A. Which report are we on?</p> <p>15 Q. I'm sorry. The first report.</p> <p>16 Okay. So, well, actually top of</p> <p>17 page 21, using the package, we find estimates of</p> <p>18 50.4 percent, 48.2 percent, and 48.3 percent?</p> <p>19 A. Yes.</p> <p>20 Q. Those are for 2020, 2021, and 2022</p> <p>21 data respectively?</p> <p>22 A. Correct.</p> <p>23 Q. So the eiPackage number for 2021 is</p> <p>24 48.2 percent?</p>



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<p style="text-align: right;">Page 101</p> <p>1 A. Yes.</p> <p>2 Q. And if we scroll up a little bit to</p> <p>3 the bottom of page 20, if we apply this metric</p> <p>4 assuming that both the BCVAP and total CVAP are</p> <p>5 apportioned similarly to the VAP within the</p> <p>6 district, we get BCVAPs of 50.4 percent using the</p> <p>7 2020 data, 49.2 percent using the 2021 data, and</p> <p>8 48.3 percent using the 2022 data.</p> <p>9 So the 2021 number using the manual</p> <p>10 approach is 49.2 percent, and the eiExpand's number</p> <p>11 is 48.2 percent for 2021. Correct?</p> <p>12 A. Oh, yeah. One of those is probably</p> <p>13 a typo.</p> <p>14 Q. Okay. Do you have a sense which</p> <p>15 number is the typo?</p> <p>16 A. No.</p> <p>17 Q. Okay. So it wouldn't be -- wouldn't</p> <p>18 make sense for there to be a one percentage point</p> <p>19 difference between the manual method and the</p> <p>20 eiExpand method?</p> <p>21 A. Yeah. I mean, if you look at the --</p> <p>22 compare the separate estimates to the -- the -- if</p> <p>23 you -- method -- the separate to the same, I guess;</p> <p>24 like, 50.9 is five-tenths of a point higher than</p>	<p style="text-align: right;">Page 103</p> <p>1 A. I mean, not having read the reports.</p> <p>2 If someone dropped something</p> <p>3 brand-new at trial, I suppose I would probably be</p> <p>4 asked about it.</p> <p>5 Q. Okay. But you don't intend to offer</p> <p>6 your own new methods, new calculation methods</p> <p>7 independent of --</p> <p>8 A. Oh, no. No. No. This is it, as</p> <p>9 far as I know.</p> <p>10 I imagine if counsel were to ask me</p> <p>11 about some new method, you would immediately jump</p> <p>12 out of your seat and object, so.</p> <p>13 Q. Why does Full Method 1 and Method 2,</p> <p>14 Population Weighted, yield different numbers?</p> <p>15 A. Full Method 1 and Method 2,</p> <p>16 Population Weighted?</p> <p>17 Q. Yes.</p> <p>18 A. Because there are different ways of</p> <p>19 apportioning individual -- ah, the citizens. And</p> <p>20 the first way --</p> <p>21 And the first method, you apportion</p> <p>22 citizens by the overall, ah, citizen voting age</p> <p>23 population percentage of the district, of the block</p> <p>24 group.</p>
<p style="text-align: right;">Page 102</p> <p>1 50.4. 49.7 is five-tenths of a point higher than</p> <p>2 49.2. 48.7 is four-tenths of a point higher than</p> <p>3 48.3. So I guess for a sense, I would say that</p> <p>4 49.2 percent number is probably the right one.</p> <p>5 Q. Okay. Do you intend to offer an</p> <p>6 opinion about any BCVAP calculations methods other</p> <p>7 than those six that are listed on the -- back to</p> <p>8 the supplemental report, page 4, Table 1?</p> <p>9 A. These are the ones that I know of;</p> <p>10 uhm, but no matter what you do, you're going to be</p> <p>11 estimating the proportion of the voting age</p> <p>12 population within -- in a block, split block group</p> <p>13 within the district and what portion is without.</p> <p>14 Maybe someone will suggest a way of</p> <p>15 doing that that doesn't involve some level of</p> <p>16 assumption that's untestable about the -- the</p> <p>17 distribution of individuals, ah, within voting age</p> <p>18 and citizen voting age categories. I can't imagine</p> <p>19 what that would be. Uhm, I have never encountered</p> <p>20 it; but, you know, I didn't see it described in any</p> <p>21 of the expert reports, so.</p> <p>22 Q. Okay. So you -- so you don't intend</p> <p>23 to offer an opinion on any -- any other calculation</p> <p>24 method?</p>	<p style="text-align: right;">Page 104</p> <p>1 In Method 2, Population Weighted,</p> <p>2 you're apportioning them by the percentage of the</p> <p>3 voting age population that lives within and without</p> <p>4 of the district.</p> <p>5 Q. I want to ask about scenarios where</p> <p>6 the ACS is reporting CVAP within a block group but</p> <p>7 the decennial census is reporting a zero VAP within</p> <p>8 that block group. How did you calculate CVAP in</p> <p>9 that case?</p> <p>10 A. So the scenario is a block group</p> <p>11 that has zero voting age population but has some</p> <p>12 citizen voting age population?</p> <p>13 Q. Correct.</p> <p>14 A. Well, using Method 1, you would look</p> <p>15 at the --</p> <p>16 If it were not a split block group,</p> <p>17 that wouldn't be an issue, because you just take</p> <p>18 the -- the CVAP data and it's all applied to the</p> <p>19 district.</p> <p>20 I don't think there was a split</p> <p>21 block group where that was the case, because you</p> <p>22 would -- I think you would crash the program.</p> <p>23 Q. So there's no way to account for a</p> <p>24 circumstance where there's CVAP being reported by</p>



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<p style="text-align: right;">Page 105</p> <p>1 the ACS but no VAP being reported by the census, 2 decennial census in your code? 3 A. In a split precinct -- or in a split 4 block group. But I don't think that could have 5 happened, because I don't think the code would run 6 because you would be dividing by zero when you 7 calculate the rates. 8 Q. So isn't it possible that persons of 9 voting age moved to a block group after the taking 10 of the decennial census and so they're reported in 11 the ACS data but not in the decennial census? 12 A. Oh, there -- there will be blocks 13 that have zero population, but I don't think any of 14 these block groups that were split had zero 15 population. 16 I mean, yeah, you're -- you're 17 absolutely right as a general matter; and that's 18 one thing I actually -- a long-standing question 19 I've had, about which ACS to use, because you can 20 have people moving around within a five-year time 21 frame. 22 Some of that -- some of the data in 23 2020 is almost a decade old now. Uhm, but I -- I 24 guess it's possible that people would have moved in</p>	<p style="text-align: right;">Page 107</p> <p>1 groups? 2 A. That's correct. 3 Q. In page 11 of your first report, 4 Figure 3, -- 5 A. Uh-huh. 6 Q. -- are these -- 7 A. Oh, just a second. Let me get over 8 to the first report. 9 Q. Okay. 10 A. Okay. 11 Q. Are these listed block groups split 12 block groups? 13 A. I don't know. 14 Q. If there are whole block groups, 15 though, they don't -- the error margin isn't 16 relevant? 17 A. Well, relevance is a legal 18 determination, and so the Court may find them 19 relevant or the Court may not find them relevant. 20 Ah, for purposes of calculating the 21 overall error margin for the district, you know, 22 they would aggregate out and you would just look at 23 the districtwide error margin. 24 Q. Okay. Do you agree that the larger</p>
<p style="text-align: right;">Page 106</p> <p>1 these intervening time periods. 2 But, again, no matter what you do, 3 you have to figure out a way to apportion these 4 non-citizens, and all of them -- or all these -- 5 these citizens in these split block groups and all 6 of them of which I'm aware at least to some degree 7 rely on the voting age population in calculating 8 the rates. 9 Q. Would this lead to an 10 underaccounting of CVAPs or removed persons that 11 ACS reported but, again, were not reported in VAP? 12 A. I don't know. 13 Q. Are you aware that redistricting 14 data hub does not remove the CVAP counts? 15 A. No. 16 Q. Let's turn to the margin of error 17 calculations. 18 In your opinion, are CVAP error 19 margins at the block group level relevant to an 20 assessment of a CVAP error margin at the district 21 level? 22 A. If you have a district that has 23 split block groups, yes. 24 Q. So only if there are split block</p>	<p style="text-align: right;">Page 108</p> <p>1 the geographical unit analyzed becomes, the smaller 2 the CVAP error of margin becomes? 3 A. No. That's wrong. 4 Q. Okay. Would you say that the CVAP 5 margin of error for the statewide level would be 6 equivalent to the CVAP margin of error for a county 7 level? 8 A. No. 9 Q. Which CVAP margin of error would you 10 expect to be larger? 11 A. The county, 'cause the population is 12 smaller. Doesn't have anything to do with the 13 county being smaller. 14 Q. Okay. So the larger the population 15 becomes, the smaller the CVAP margin of error 16 becomes? 17 A. Uhm, yeah. 18 Q. Okay. Do you know how many block 19 groups in whole or in part are included in 20 Mr. Fairfax's Plan 1 illustrative District 7? 21 A. 119. 22 Q. Good memory. 23 A. It's right there on page 11. 24 Q. Oh, okay.</p>



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<p style="text-align: right;">Page 109</p> <p>1 Do you agree that you cannot</p> <p>2 calculate a margin of error for illustrative</p> <p>3 districts because the district boundaries split</p> <p>4 block groups?</p> <p>5 A. Uhm, there is additional uncertainty</p> <p>6 to the error margins because the district</p> <p>7 boundaries split block groups; however, we can add</p> <p>8 up the variances, the squared variances -- or the</p> <p>9 squared standard deviations of the fragments that</p> <p>10 we have, take their square root, and that provides</p> <p>11 an estimate of the overall, ah, error margin.</p> <p>12 We can also look at the error margin</p> <p>13 for the blocks wholly within, compare it to the</p> <p>14 blocks wholly -- all the blocks within the block</p> <p>15 group, and get upper or lower bounds, so.</p> <p>16 Q. In the middle of page 19 where you</p> <p>17 write, Finally, we can at least estimate an error</p> <p>18 margin for the issues raised in the preceding</p> <p>19 section. There is, however, to my knowledge no way</p> <p>20 to estimate an error margin for districts created</p> <p>21 using the technique above.</p> <p>22 A. Right. So we don't know the</p> <p>23 additional error that this estimation approach adds</p> <p>24 to the sampling error.</p>	<p style="text-align: right;">Page 111</p> <p>1 or in part in Illustrative District 7, before</p> <p>2 splitting them.</p> <p>3 The total CVAP of these block groups</p> <p>4 using 2022 data is 129,045 with a 95 percent error</p> <p>5 margin of plus or minus 3,893 and the 95 percent</p> <p>6 error margin of plus or minus 4,638. The total --</p> <p>7 the total Black CVAP of these block groups, using</p> <p>8 2022 data, is 55,935 with a 90 percent error margin</p> <p>9 of 2,923, and a 95 error margin of 3,438.</p> <p>10 And then you get to another</p> <p>11 estimate. And then this suggests that a lot is</p> <p>12 riding on how the BCVPs of the split precincts</p> <p>13 are -- I think it's supposed to say "calculated."</p> <p>14 A. There's a wordsmithing example.</p> <p>15 Q. Yeah.</p> <p>16 It also suggests that, even though</p> <p>17 we do not calculate precise error margins for the</p> <p>18 BCVPs of the complete districts, we should be</p> <p>19 skeptical of BCVPs hovering within a couple of</p> <p>20 points of 50 percent.</p> <p>21 Is your estimation of the error</p> <p>22 margin based on the block groups included in the</p> <p>23 district in whole or in part?</p> <p>24 A. Yes.</p>
<p style="text-align: right;">Page 110</p> <p>1 There are two separate issues. The</p> <p>2 sampling error is the -- kind of what you get from</p> <p>3 a poll that's expressed that is the uncertainty</p> <p>4 inherent to talking to a sample of the population</p> <p>5 rather than the entire group.</p> <p>6 Uhm, there's always additional error</p> <p>7 that isn't quantifiable, your -- your -- if you're</p> <p>8 doing polls. You know, not everyone has -- Some</p> <p>9 people only have cell phones, and certain polling</p> <p>10 techniques can't reach them. So that can add</p> <p>11 additional uncertainty.</p> <p>12 In this instance, the fact that</p> <p>13 you're kind of taking a best guess at how to</p> <p>14 allocate people in split block groups within and</p> <p>15 without the district adds an additional amount of</p> <p>16 uncertainty that we can't quantify to the sampling</p> <p>17 error error margin.</p> <p>18 Q. So at the bottom of page 14, It is</p> <p>19 difficult to provide precise estimates for the</p> <p>20 Illustrative District as a whole since, as</p> <p>21 described below, census block groups are split.</p> <p>22 This leads to further uncertainty about the point</p> <p>23 estimates as described below. However, we can look</p> <p>24 at all of the census block groups included in whole</p>	<p style="text-align: right;">Page 112</p> <p>1 Q. For the partially contained block</p> <p>2 groups, did you account for the split in those</p> <p>3 block groups?</p> <p>4 A. No. But the error margin will be</p> <p>5 bigger because you're decreasing the population.</p> <p>6 Q. And you cannot account for split</p> <p>7 block groups in your margin of error?</p> <p>8 A. Except to say that the error margin</p> <p>9 will be larger than 3.1 percent.</p> <p>10 So this is like a best-case</p> <p>11 scenario.</p> <p>12 So there's going to be an additional</p> <p>13 error margin from the fact that you're truncating</p> <p>14 the population of some of these block groups, and</p> <p>15 then there's going to be additional error from --</p> <p>16 that we -- we don't know about because you have to</p> <p>17 make assumptions of how -- about how the citizens</p> <p>18 are apportioned in these split block groups.</p> <p>19 So like I said, this is the</p> <p>20 best-case scenario.</p> <p>21 Q. Okay.</p> <p>22 A. The true error margin is almost</p> <p>23 certainly larger. Wouldn't be smaller.</p> <p>24 Q. Okay. So you opine that there are</p>



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<p style="text-align: right;">Page 113</p> <p>1 some serious limitations that accompany CVAP data, 2 rendering impossible in this situation to determine 3 whether Illustrative District 7 is, in fact, the 4 majority BCVP. Correct? 5 A. Yes. 6 Q. So what BCVP number would be 7 appropriate to declare Illustrative District 7 to 8 be majority BCVP, in your opinion? 9 A. Well, the 95 percent confidence 10 interval is plus or minus 3.1 percent; so the 11 best-case scenario would be 53.1 percent BCVP. 12 Even then you've got the additional 13 error margin from the fact that you're -- you're 14 trimming individuals from within the district. 15 So I didn't endeavor to calculate a 16 precise threshold that plaintiffs would have to 17 cross. I just knew that the districts that we 18 reviewed weren't within the best-case scenario of 19 the error margin. 20 Q. What percentage confidence do you 21 believe is appropriate to declare district majority 22 BCVP? 23 A. Using the standard typical of the 24 social sciences, it would be 95 percent.</p>	<p style="text-align: right;">Page 115</p> <p>1 individuals sampled. 2 So if there was a very low variance, 3 then you would not have a very, ah -- Even in that 4 situation, you have a high burden to shoulder. If 5 the variance is larger, then, yes, it becomes more 6 difficult. 7 Q. The effect of building in this 8 confidence interval hurdle would be to make it more 9 challenging for a minority group to demonstrate a 10 majority population in a district. Correct? 11 A. No, I'm not going to agree with your 12 framing, because it's not built in. You're 13 building something in. The error margins are 14 inherent to samples. They exist whether a court or 15 plaintiffs or defendants want to acknowledge it or 16 not. And since we are all doing frequentist 17 analyses here, if your error margin is including 18 50 percent, you can't say within a reasonable 19 degree of scientific certainty that the district 20 is, in fact, 50 percent plus one. 21 Q. Okay. Well, proving that the 22 district is 50 percent plus one to a 95 percent 23 degree of certainty would raise the BCVP threshold 24 requirement of the point estimate above 50 percent</p>
<p style="text-align: right;">Page 114</p> <p>1 Q. Under your approach, plaintiffs 2 would have to demonstrate not BVAP -- sorry -- not 3 a BCVP of 50 percent plus one, but rather a BCVP 4 a certain percentage points higher than that. 5 Correct? 6 A. Well, it would depend on the 7 district and the level you're operating in. If it 8 were a congressional district, that number would be 9 much, much smaller; uhm, but this -- this -- 10 Yeah, this uncertainty is inherent 11 in taking samples. 12 Q. What about a city council district 13 in a small municipality? How large would you 14 expect a 95 percent confidence interval may be the 15 upper bound in that case? 16 A. I couldn't guess. 17 Q. Assume a district of 1,000 CVAP. 18 What may be the confidence -- 19 A. What's your variance? 20 Q. What do you mean by the "variance"? 21 A. I mean the numerator when you're 22 calculating an error margin. Error margins is the 23 Z statistic desired times the square root of the 24 variance divided by the popu- -- the number of</p>	<p style="text-align: right;">Page 116</p> <p>1 plus one. Correct? 2 A. No. 3 Q. Would it be possible to have an 4 error margin that is -- or a confidence interval 5 that the 95 percent confidence interval is the 6 point estimate? 7 A. You still have to re- -- You still 8 have to demonstrate it's 50 percent plus one; but 9 because you're relying on samples because there's 10 no citizenship question in the census data, uhm, 11 you know, you have to account for the error margins 12 when you are trying to make that declaration. 13 If -- if the next census has a citizenship question 14 on it, then you don't have this conversation. 15 Q. Are you aware of a court ever 16 requiring the demonstration that a minority group 17 was above 50 percent CVAP with a 95 percent 18 confidence interval? 19 A. I don't know that anyone's ever 20 litigated this one way or another, but the 21 confidence intervals were still there regardless of 22 what the Court may or may not have declared. 23 Q. Okay. Now, the relationship between 24 the point estimate and the outer edges of the</p>

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<p style="text-align: right;">Page 117</p> <p>1 confidence intervals, if you drew a graph where the</p> <p>2 probability of the actual BCVP number landing at</p> <p>3 any single value was on, say, the X axis, and the</p> <p>4 vertical axis, Y axis, was the probability of the</p> <p>5 BCVP value being any actual BCVP value, would</p> <p>6 that look like a bell curve where the higher</p> <p>7 probability was clustered near the point estimate?</p> <p>8 A. The probab- -- The bell curve is</p> <p>9 around the --</p> <p>10 We don't make direct probability</p> <p>11 statements about the point estimate when we are</p> <p>12 doing frequentist analysis. The bell curve is</p> <p>13 around the true population value.</p> <p>14 So if the true citizen voting age</p> <p>15 population of the district were 50.1 and you took a</p> <p>16 hundred polls, 95 of them at 95 percent confidence</p> <p>17 would have 50.1 contained within their error</p> <p>18 margins.</p> <p>19 Q. Well, we don't know what the actual</p> <p>20 number is. Correct?</p> <p>21 A. Exactly.</p> <p>22 Q. So if this is an estimate, wouldn't</p> <p>23 the distribution of what we know be centered around</p> <p>24 the point estimate?</p>	<p style="text-align: right;">Page 119</p> <p>1 All the -- all the confidence</p> <p>2 intervals tell us is that, with 95 percent</p> <p>3 confidence, 95 of a hundred polls or one out of --</p> <p>4 or 19 out of 20 polls are going to have the true</p> <p>5 population value somewhere within those confidence</p> <p>6 intervals.</p> <p>7 Q. So let's do a hypothetical.</p> <p>8 Say the BCVP point estimate is</p> <p>9 51 percent, and say you have correctly calculated a</p> <p>10 margin of error at plus or minus three percent.</p> <p>11 And so the lower bound of the confidence interval</p> <p>12 is 48 percent; the upper bound of the confidence</p> <p>13 interval is 54 percent.</p> <p>14 Your testimony is that it's just as</p> <p>15 likely 48 percent, the actual value, as it is</p> <p>16 51 percent?</p> <p>17 A. All we know on the basis of that</p> <p>18 confidence interval is that 19 times out of 20, the</p> <p>19 true population value is going to be somewhere</p> <p>20 within that population interval. Doesn't tell us</p> <p>21 where. That's the downside of doing frequentist</p> <p>22 statistics, is that you don't get to make direct</p> <p>23 statements about hypotheses. You have to backwards</p> <p>24 reason that.</p>
<p style="text-align: right;">Page 118</p> <p>1 A. No. The distribution is -- is</p> <p>2 centered around the population value.</p> <p>3 And the whole point of taking the</p> <p>4 sample is to try to constrain our uncertainty about</p> <p>5 what that total population is, because we know</p> <p>6 through the central limit theorem that as you take</p> <p>7 more and more -- as you take samples, those</p> <p>8 population needs are going to be normally</p> <p>9 distributed around the true population value.</p> <p>10 It would be wonderful if we had a</p> <p>11 hundred separate polls taken here; uhm, but we</p> <p>12 don't. We have one. And, ah, that one poll for</p> <p>13 this district doesn't allow us to exclude the</p> <p>14 possibility with reasonable certainty typical of</p> <p>15 our discipline that the CVAP is less than</p> <p>16 50 percent.</p> <p>17 Q. Is it more likely that the true</p> <p>18 estimate is at -- the true value is nearer the</p> <p>19 point estimate than it is near the outer edges of</p> <p>20 the confidence intervals?</p> <p>21 A. The confidence intervals properly</p> <p>22 interpreted don't give us any -- any information</p> <p>23 about where the true population is within the</p> <p>24 confidence intervals.</p>	<p style="text-align: right;">Page 120</p> <p>1 Q. What about 47.9 percent, which falls</p> <p>2 just outside of the confidence interval? Is</p> <p>3 47.9 percent just as likely as 51 percent?</p> <p>4 A. You would say that 19 times out of</p> <p>5 20, we would include the population, true</p> <p>6 population estimate within the confidence interval,</p> <p>7 because if it's outside the confidence interval to</p> <p>8 the degree that it's typical of political science,</p> <p>9 you would then exclude -- or you would reject a</p> <p>10 hypothesis that the population was below -- was --</p> <p>11 was 47.9 percent, because the data that we see are</p> <p>12 too inconsistent with that outcome.</p> <p>13 Q. So there's a -- a line between</p> <p>14 47.9 percent and 48 percent where you feel more</p> <p>15 confident it's 48 percent, but you don't feel more</p> <p>16 confident that it's 51 percent than 48 percent?</p> <p>17 A. I didn't say anything about that.</p> <p>18 I said at that point we would</p> <p>19 reject --</p> <p>20 If someone came up to me and said</p> <p>21 it's 47.9 percent, I would say no. Using the</p> <p>22 standards of the typical political science</p> <p>23 discipline, we would be able to reject that</p> <p>24 hypothesis.</p>

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<p style="text-align: right;">Page 121</p> <p>1 You're making probability statements</p> <p>2 about seeing the data if a given outcome were true.</p> <p>3 You're not making statements about the probability</p> <p>4 that a given outcome is true.</p> <p>5 If you want to make direct</p> <p>6 statements about the probability that something is</p> <p>7 51 percent or 50 percent or whatever, you need to</p> <p>8 do a Bayesian analysis which would enable you to do</p> <p>9 that.</p> <p>10 (Discussion held off the record.)</p> <p>11 A. If you want to make direct</p> <p>12 probability statements about an outcome, you need</p> <p>13 to do a Bayesian analysis, which enables you to do</p> <p>14 that.</p> <p>15 Q. Be a good time to break, or you want</p> <p>16 to keep going?</p> <p>17 A. I don't care. Either way.</p> <p>18 Q. Okay. We can keep going for a</p> <p>19 little while.</p> <p>20 Okay. You expressed some concerns</p> <p>21 with the 2020 CVAP data where you write in your</p> <p>22 report the 2021 one-year ACS estimates are</p> <p>23 particularly unreliable.</p> <p>24 Are you aware that the census</p>	<p style="text-align: right;">Page 123</p> <p>1 collected in 2020, the ACS 5-year HU weighting was</p> <p>2 modified to enhance our methods to attempt to</p> <p>3 mitigate the bias observed in the 2020 data. Our</p> <p>4 revised method- -- methodology worked to</p> <p>5 incorporate the entropy-balance weighting</p> <p>6 methodology used to produce the 2020 ASC 1-year</p> <p>7 experimental data products into our standard</p> <p>8 production methodology outlined above.</p> <p>9 "To accomplish this integration, we</p> <p>10 had to devise a modified set of steps to partially</p> <p>11 process the 4 years of data from 2017 to 2019 and</p> <p>12 2021 using our standard methods before combining</p> <p>13 those data with the 2020 data that had been</p> <p>14 processed using the EBW methodology."</p> <p>15 Does that resolve your concern with</p> <p>16 the 2020 data as utilized in the 2021 ACS 5-year</p> <p>17 estimates?</p> <p>18 A. I'd have to read this whole document</p> <p>19 and see if it says that it -- the census now</p> <p>20 believes these data meet its quality expectations.</p> <p>21 But it certainly seems to be a step in the right</p> <p>22 direction.</p> <p>23 Q. Do you believe the nonresponse bias</p> <p>24 issue affecting the 2020 1-year ACS estimates may</p>
<p style="text-align: right;">Page 122</p> <p>1 modified its weighting of data in the 2021</p> <p>2 five-year ACS estimates to account for nonresponse</p> <p>3 bias in 2020 data --</p> <p>4 A. I haven't seen that.</p> <p>5 MR. GENBERG: Will you mark this</p> <p>6 Exhibit 9, please.</p> <p>7 - - -</p> <p>8 Thereupon, a document was marked for</p> <p>9 purposes of identification as Exhibit 9 by the</p> <p>10 reporter.</p> <p>11 - - -</p> <p>12 BY MR. GENBERG:</p> <p>13 Q. Does this appear to be a true and</p> <p>14 correct copy of American Community Survey of</p> <p>15 Multiyear Accuracy of the Data document?</p> <p>16 A. I can't authenticate this for you.</p> <p>17 I have no idea where you got it from, but that is</p> <p>18 the title of the document.</p> <p>19 Q. If you turn to page 7, Revised</p> <p>20 Methodology for 2017 through 2021 ACS 5-Year HU</p> <p>21 Weighting, --</p> <p>22 A. Yes.</p> <p>23 Q. -- "Due to issues with the</p> <p>24 non-response bias present in a portion of the data</p>	<p style="text-align: right;">Page 124</p> <p>1 have also affected the decennial census?</p> <p>2 A. Yeah.</p> <p>3 Q. In any of your previous</p> <p>4 redistricting work as either an expert or special</p> <p>5 master, have you expressed a concern that issues</p> <p>6 with 2020 ACS data collection compromised the</p> <p>7 reliability of 2021 or 2022 ACS 5-year estimates?</p> <p>8 A. No.</p> <p>9 Q. At the bottom of page 21 of your</p> <p>10 first report, you propose calculating eligible</p> <p>11 voting population for district refined by excluding</p> <p>12 those with a disqualifying felony conviction. If</p> <p>13 data on registered voters demonstrated that over</p> <p>14 50 percent of registered voters in a district were</p> <p>15 black, would that resolve your concerns about the</p> <p>16 population of ineligible voters?</p> <p>17 A. No.</p> <p>18 Q. How did you calculate --</p> <p>19 Well, why -- why not?</p> <p>20 A. Because if you have a higher</p> <p>21 registration rate but there's still more</p> <p>22 variable -- more eligible -- eligible white voters</p> <p>23 in the area, that registration rate can change over</p> <p>24 time.</p>



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<p style="text-align: right;">Page 125</p> <p>1 I mean, I guess it just depends what 2 exactly it is you're going for. If you're looking 3 for the eligibility rate in the population, then I 4 don't think the registration number is a standing 5 for that. 6 Q. How did you calculate eligible 7 voting population for a district refined by 8 excluding those with a disqualifying felony 9 conviction? 10 A. I believe I looked at Dr. Burch's 11 report. 12 Q. And how did you apply Dr. Burch's 13 report to your calculation at the district level? 14 A. Well, since I assumed that Dr. Burch 15 is not just talking about Alabama in general, but 16 the areas that are of interest in this case, uhm, I 17 used her statewide estimate of the voting eligible 18 population. 19 At the end of the day, this is 20 something that isn't -- If the goal is really to 21 determine the eligible population, this isn't a 22 defense burden. It's a plaintiffs' burden. 23 If you're trying to get close -- as 24 close as possible to the eligible population, you</p>	<p style="text-align: right;">Page 127</p> <p>1 BY MR. GENBERG: 2 Q. Okay. If we could turn to page 18, 3 a few sentences from the bottom of the page, 4 Dr. Burch writes, According to estimates from the 5 Sentencing Project, 318,681 people, parens, 6 8.6 percent of the voting eligible population, 7 closed parens, were barred from voting in Alabama 8 elections in 2022 due to a felony conviction. For 9 black Americans in Alabama, the rate is higher. 10 The Sentencing Project estimates that 14.7 percent 11 of otherwise eligible black people in Alabama 12 cannot vote due to a relevant felony conviction. 13 Is there anything in what I've just 14 read that leads you to believe that those estimates 15 from the Sentencing Project were focused on the 16 areas of Alabama at issue in this litigation? 17 A. Well, the first sentence of her 18 report is, I was asked by Plaintiffs' counsel in 19 this case to evidence -- evaluate evidence in 20 Alabama and particularly the Greater Montgomery and 21 Huntsville areas concerning Senate Factor 5 or "the 22 extent to which minority group members bear the 23 effects of discrimination in areas such as 24 education, employment, and health, which hinder</p>
<p style="text-align: right;">Page 126</p> <p>1 need to take account of that, especially when you 2 have your own expert opining that nearly one in 3 eleven black residents in the state are barred from 4 voting because of a felony conviction -- I'm 5 sorry -- 14.7 statewide. 6 Q. Is your assumption that Dr. Burch is 7 not just talking about Alabama in general, but the 8 areas that are of interest in the case based on 9 anything she wrote in her report? 10 A. No. Since she's an expert for 11 plaintiffs, I'm willing to assume that she thinks 12 that what she talks about at the state level is 13 also applicable at the area she discusses. 14 MR. GENBERG: Okay. I'm going to 15 hand you the -- the February 2nd report of 16 Dr. Burch. 17 Can we mark this as Exhibit 10, 18 please. 19 --- 20 Thereupon, a document was marked for 21 purposes of identification as Exhibit 10 by the 22 reporter. 23 --- 24</p>	<p style="text-align: right;">Page 128</p> <p>1 their ability to participate effectively in the 2 political process," is an important component of 3 VRA analysis. 4 So since she was asked to 5 particularly evaluate the Montgomery and Huntsville 6 areas, I assumed that her work on page 14 is 7 something that she believes is applicable to the 8 Huntsville and Montgomery areas. 9 If not, I'm not sure what the 10 relevance is to the case; uhm, but that's what -- 11 that's how I was working. 12 If she thinks that, ah, black 13 Americans in the Huntsville area have a lower 14 disenfranchisement rate than white people, uhm, 15 that would certainly seem to change her testimony. 16 Q. Are you aware of how the Sentencing 17 Project arrived at those estimates? 18 A. No. 19 Q. Are you aware that those estimates 20 are for the state of Alabama as a whole? 21 A. Yes. But again, since this is in a 22 report that is from the very get-go about the 23 rates -- about the evidence for greater Montgomery 24 and Huntsville, I would assume Dr. Burch is</p>



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<p style="text-align: right;">Page 129</p> <p>1 including it because she believes it's applicable 2 to the Greater Huntsville and Montgomery areas. 3 If not, if she thinks that black 4 Americans in Huntsville have a lower felony 5 disenfranchisement rate than elsewhere in the 6 state, that's a very different type of testimony, 7 and this would be pretty misleading. 8 Q. Do you have any reason to believe 9 the statewide percentages are equivalent in the 10 Greater Huntsville area? 11 A. Only because Dr. Burch is doing a 12 report of analyzing the Greater Huntsville and 13 Montgomery areas. 14 If she thinks that they are 15 significantly different in the Huntsville area, 16 then reporting these area -- these statistics is 17 misleading. So, no. I think they're probably 18 relevant to the area. 19 Q. In any of your previous 20 redistricting work as an expert or a special 21 master, have you expressed the opinion that 22 eligible voting population should be refined by 23 excluding those with a disqualifying felony 24 conviction?</p>	<p style="text-align: right;">Page 131</p> <p>1 suggesting the eligible voting population is the 2 target, figuring that out is how you arrive at the 3 eligible voting population. 4 Q. In any of your previous 5 redistricting work as expert or special master, 6 have you expressed the opinion that the eligible 7 voting population should be refined by applying 8 statewide data ratios to a district level? 9 A. No, because I've never said that the 10 eligible voting population should be the goal, to 11 my knowledge. 12 Q. When is it appropriate to use CVAP, 13 in your opinion? 14 A. I think the CVAP numbers are always 15 fine. It just comes with uncertainty that you have 16 to account for. And so if you are trying to make a 17 statement with specificity for purposes of 18 Gingles 1 that a district is higher than 50 percent 19 plus one, then it will depend where your CVAP 20 numbers land or your CVAP estimates land. 21 MR. GENBERG: Okay. I think now 22 might be a good time to -- to break for lunch, if 23 that works. 24 THE WITNESS: Okay.</p>
<p style="text-align: right;">Page 130</p> <p>1 A. That's part of the definition of 2 "eligible voters." 3 Q. Have you ever expressed the opinion 4 that that should factor into the eligible voting 5 population number? 6 A. It's part of the eligible voting 7 population number. 8 If you go to -- Oh, I can't think of 9 the name of the site that calculates eligible 10 voting population, that's part of what -- that's 11 what distinguishes it just from, ah, the CVAP 12 statistic. 13 So when Mr. Fairfax is suggesting 14 that we determine the eligible voting population, 15 determining the eligible voting population takes 16 account of disenfranchisement. 17 Q. Are you aware of that being utilized 18 in the case? 19 A. It's literally the definition of 20 eligible voters. I don't know if anyone has ever 21 used it. 22 If you're just looking at CVAP, the 23 citizen voting age population, then you wouldn't 24 take account of this. But since Mr. Fairfax is</p>	<p style="text-align: right;">Page 132</p> <p>1 - - - 2 Thereupon, a luncheon recess was 3 taken at 1:17 p.m. 4 - - - 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24</p>



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<p style="text-align: right;">Page 133</p> <p>1 Tuesday Afternoon Session May 7, 2024 2 2:33 p.m. 3 --- 4 BY MR. GENBERG: 5 Q. Dr. Trende, did you speak about the 6 substance of the deposition with your counsel 7 during the break? 8 A. Yes. 9 Q. What did you discuss? 10 A. Uhm, we talked about how people 11 really want to do Bayesian analysis when they're 12 only doing frequentist analysis and get the two 13 approaches conflated frequently. We talk about -- 14 You know, when we're talking about 15 these confidence intervals, something called the P 16 value confidence interval duality; so when you're 17 talking about a 95 percent confidence interval, to 18 put it into 19 P value terms, everything outside has a P value 20 of -- of less -- of -- you -- Basically the 21 p-values don't exclude possibilities while you're 22 inside the confidence interval. You fail a test of 23 statistical significance if you performed one. And 24 that a lot of people confuse the maximum likelihood</p>	<p style="text-align: right;">Page 135</p> <p>1 it. I'm just saying you can actually directly 2 calculate those things. 3 Q. Okay. All right. Well, for the 4 sake of the hypothetical, let's assume it's two 5 percent at the -- the 90 percent band. 6 So you testified earlier that you 7 can't come up with any kind of probability within 8 the -- within the confidence intervals. Right? 9 A. Right. 10 Q. So if you are trying to determine 11 what's more likely, let's take the -- the 12 90 percent confidence intervals, you would say it's 13 just as likely that the true value falls somewhere 14 between 49 percent and 53 percent under the 15 hypothetical two percent plus or minus two percent, 16 90 percent confidence interval band. 17 A. I'd say the true value could be 18 anywhere. What we would say from our point 19 estimate is that 90 percent of the time, that 20 error margin, which now runs from 49 to 53, would 21 contain the true value somewhere within the error 22 margin. 23 Q. Right. 24 And if we -- So if we're looking for</p>
<p style="text-align: right;">Page 134</p> <p>1 estimate with more likely than not. 2 Q. Okay. Well, return to the 3 confidence intervals briefly. 4 Just going back to that hypothetical 5 we talked about where you have a 51 percent -- I'll 6 re- -- I'll restate it. 7 So we have a 51 percent point 8 estimate, okay? And we'll say it's a plus or minus 9 three percent for the 95 percent confidence 10 interval using your numbers, which would put the 11 lower bound at 48 percent, upper bound at 54 12 percent. And now let's say hypothetically the 90 13 percent confidence interval is two percent, plus or 14 minus two percent off the point estimate; so that 15 puts us at 49 percent -- or 49 percent for the 16 lower bound, 53 percent for the upper bound. 17 Does that make sense? 18 A. So if it's three percent at 19 95 percent confidence, standard deviation is 1.5, 20 and the actual confidence interval would be 1.64 21 times 1.5. So it would be more than two percent, 22 but -- 23 Q. Okay. 24 A. -- well, we'll call it -- we'll call</p>	<p style="text-align: right;">Page 136</p> <p>1 going from the frame of the 90 percent and then we 2 evaluate a number that's let's say 48.5 percent, 3 that number is outside the bounds of our 4 hypothetical, plus or minus two percent. Right? 5 A. It's outside the bounds, yes. So if 6 you suggested to me that the true value was 7 48.5 percent, I'd say, based on the data we have, 8 we would reject that theory for that hypothesis. 9 Q. So under the hypothetical, 10 90 percent of the time it's within 49 to 11 53 percent; the 48.5 percent is within the, you 12 know, range of outcomes of 10 percent likelihood, 13 you would say -- would you say that's an unlikely 14 outcome? 15 A. You're going to have to slow that 16 down again. 17 Q. Okay. Under -- Looking at the top 18 in this interval bands for the 90 percent in our 19 hypothetical is plus or minus two percent from the 20 51 percent point estimate, the -- we're looking 21 at -- what is the -- the odds that it's a 22 48.5 percent number, that 48.5 percent falls within 23 the 10 percent range of outcomes that are less 24 likely?</p>



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<p style="text-align: right;">Page 137</p> <p>1 A. (Witness shook head negatively.)</p> <p>2 Q. Okay. You're shaking your head,</p> <p>3 so --</p> <p>4 A. You really, really want to make</p> <p>5 statements about the probability of the true</p> <p>6 population. If you want to do that, you need to</p> <p>7 load JAGS into R and do some type of Bayesian</p> <p>8 analysis.</p> <p>9 All you can say is that if the true</p> <p>10 value were 48.5 percent at 90 percent confidence or</p> <p>11 a P value of .1 if you prefer, which is the highest</p> <p>12 P value I think I've ever seen in peer-reviewed</p> <p>13 literature -- maybe .2, but I think .1 -- uhm, it</p> <p>14 would be unlikely that you would get a poll result</p> <p>15 like this.</p> <p>16 When you're doing frequentist</p> <p>17 statistics, everything is a statement of the</p> <p>18 probability of the outcome, not the probability of</p> <p>19 your hypothesis. You're saying, is the data we see</p> <p>20 so inconsistent with this hypothesis that you're</p> <p>21 putting out that we would reject the idea of the</p> <p>22 hypothesis being true.</p> <p>23 Q. Okay. So -- All right. So, yes or</p> <p>24 no, do you reject the -- the supposition that</p>	<p style="text-align: right;">Page 139</p> <p>1 enough that you say, Okay, it's -- it's crazy that</p> <p>2 it would actually be this. But you're never making</p> <p>3 a direct statement about the probability of the</p> <p>4 hypothesis.</p> <p>5 Q. So if it were a 47.5 percent number,</p> <p>6 which is outside the 95 percent confidence</p> <p>7 interval, that number you would feel confident</p> <p>8 rejecting that -- that value. You would -- you</p> <p>9 would be -- feel confident saying that is unlikely.</p> <p>10 A. Because it would be extremely un- --</p> <p>11 Not the value. It would be extremely unlikely to</p> <p>12 get the data that we see if that were the true</p> <p>13 population value. So I'm not going to accept --</p> <p>14 It's way of translating a</p> <p>15 probability about the likelihood of the data to a</p> <p>16 yes/no about the null hypothesis, the opposite of</p> <p>17 your hypothesis.</p> <p>18 Q. I guess just comparing the</p> <p>19 90 percent and the 95 percent, it appears there's a</p> <p>20 trend where the further we move away from the point</p> <p>21 estimate, we think it's less likely that it falls</p> <p>22 within those -- those ranges; because if -- under</p> <p>23 the hypothetical, if we're saying at 90 percent</p> <p>24 confidence it's within plus or two -- minus two</p>
<p style="text-align: right;">Page 138</p> <p>1 48.5 percent is -- is -- there's a 90 percent</p> <p>2 likelihood it's not one of the -- the values</p> <p>3 including 48.5 percent?</p> <p>4 A. At 90 percent confidence, a P value</p> <p>5 of .1, I would reject a suggestion that the true</p> <p>6 value is 48.5.</p> <p>7 At 95 -- 95 percent confidence,</p> <p>8 which is the typical threshold required in social</p> <p>9 sciences, in order to say that a conclusion is</p> <p>10 reliable, using Daubert language intentionally, at</p> <p>11 95 percent confidence, you would not reject that</p> <p>12 possibility.</p> <p>13 Q. Okay. So you've anticipated my next</p> <p>14 question somewhat.</p> <p>15 So if we reject at 90 percent</p> <p>16 confidence level that 48.5 percent is the true</p> <p>17 value, but at the 95 percent confidence level we</p> <p>18 can't reject that it's the true value, doesn't the</p> <p>19 fact that it's projected by the 90 percent</p> <p>20 confidence interval give some kind of indication</p> <p>21 that it's a less probable event?</p> <p>22 A. No, because you're only making</p> <p>23 statements about the probability of the data, not</p> <p>24 the true value. And the data become unlikely</p>	<p style="text-align: right;">Page 140</p> <p>1 percent, at 95 percent confidence we're -- we think</p> <p>2 it's within plus or minus three percent; and then</p> <p>3 beyond plus or minus three percent, we're, you</p> <p>4 know, beyond the, you know, 95 percent confidence</p> <p>5 interval range, and so doesn't it -- isn't</p> <p>6 there -- there's no correlation at all between the</p> <p>7 further we move away from the point estimate and</p> <p>8 the -- the less confidence that that number is the</p> <p>9 true value?</p> <p>10 A. I think it took me about three years</p> <p>11 of statistics coursework before I really understood</p> <p>12 and accepted this. And it's probably one of the</p> <p>13 hardest things I try to teach to my students. I</p> <p>14 get it.</p> <p>15 But you keep wanting to come back</p> <p>16 and make statements about the likelihood of your</p> <p>17 hypothesis about it being 48.5 percent.</p> <p>18 You can't do that. All you're</p> <p>19 saying is that if the null were true, the opposite</p> <p>20 of your hypothesis were true, how likely is it that</p> <p>21 we would see data such as this? And at a certain</p> <p>22 point, it becomes so unlikely, ah, that we have to</p> <p>23 reject that null hypothesis and make a yes/no</p> <p>24 statement. But we don't ever say, you know, it's</p>



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<p style="text-align: right;">Page 141</p> <p>1 40 percent.</p> <p>2 Think of it this way. Like, what's</p> <p>3 the P -- Think of it in terms of p-values, because</p> <p>4 I think this is a little easier to explain.</p> <p>5 The P value is saying if the null</p> <p>6 hypothesis were true, what is the probability we</p> <p>7 would see data at least as extreme as this?</p> <p>8 Okay. So a P value of .05 tells us</p> <p>9 that if the opposite of our hypothesis were true,</p> <p>10 there's a one in 20 chance we would see data this</p> <p>11 extreme.</p> <p>12 What you don't get to do --</p> <p>13 We remember, like, if you have a</p> <p>14 pug, then you have a dog. It doesn't mean that if</p> <p>15 you have a dog you have a pug, although you should.</p> <p>16 Likewise, you don't get to say if the null</p> <p>17 hypothesis is true, there's a five percent chance</p> <p>18 of the data, you don't get to directly flip that</p> <p>19 around and make a statement about the probability</p> <p>20 of the if, because you're taking the if for</p> <p>21 granted.</p> <p>22 Q. Okay. You testified earlier that</p> <p>23 you didn't use the RDH data for the CVAP to VAP</p> <p>24 disaggregation.</p>	<p style="text-align: right;">Page 143</p> <p>1 population, then eligible population includes felon</p> <p>2 disenfranchisement.</p> <p>3 Q. Okay.</p> <p>4 A. But because Mr. Fairfax made the</p> <p>5 suggestion that we want to get as close as possible</p> <p>6 to the eligible population, what I'm saying is if</p> <p>7 that's true, the eligible population by definition</p> <p>8 excludes disenfranchised felons, and so we would</p> <p>9 have -- If he's serious about that --</p> <p>10 Frankly, he should be estimating</p> <p>11 that, not us; but I took a stab at it.</p> <p>12 Q. Okay. Just a yes/no answer, you've</p> <p>13 never written a report where you refined CVAP by</p> <p>14 disqualifying felony convictions. Correct?</p> <p>15 A. You can ask yes/no; but if I think</p> <p>16 there needs to be an explanation, I'll add it.</p> <p>17 The answer again is I haven't done</p> <p>18 that, but it's because I've never written a report</p> <p>19 where I'm directly trying to estimate the eligible</p> <p>20 population.</p> <p>21 Q. Okay. You state that -- And</p> <p>22 we'll -- I'll go to the -- the page 6 of your first</p> <p>23 report, Exhibit 1.</p> <p>24 You state that, near the top of the</p>
<p style="text-align: right;">Page 142</p> <p>1 A. Redistricting data hub.</p> <p>2 Q. Redistricting data hub. Sorry.</p> <p>3 Because it wasn't available. Right?</p> <p>4 A. I don't think it was, but --</p> <p>5 Q. Why not use the -- the 2021</p> <p>6 redistricting data hub data when you were computing</p> <p>7 the 2021 five-year ACS numbers?</p> <p>8 A. Ah, first, because it would be --</p> <p>9 Well, a couple reasons.</p> <p>10 First, I had the data all downloaded</p> <p>11 to my computer from the Washington case.</p> <p>12 Second, still as not to mix data</p> <p>13 sources, so we would be doing an apples to apples.</p> <p>14 And third, 'cause I don't know how</p> <p>15 RDH does -- what method RDH uses to apportion split</p> <p>16 block groups or to estimate them down to the block</p> <p>17 level.</p> <p>18 Q. Have you ever written a report where</p> <p>19 you refined a CVAP number by disqualifying felony</p> <p>20 convictions?</p> <p>21 A. Well, no, 'cause I don't think I've</p> <p>22 ever made the suggestion that it should be done by</p> <p>23 the eligible population.</p> <p>24 If I were saying eligible</p>	<p style="text-align: right;">Page 144</p> <p>1 page, CVAP is typically used when there are large</p> <p>2 Hispanic populations where non-citizenship rates</p> <p>3 are often high and where a district with a</p> <p>4 50 percent Hispanic voting age population may</p> <p>5 actually have a quite small Hispanic citizen</p> <p>6 population. Right?</p> <p>7 A. Yes, that's what it says.</p> <p>8 Q. If instead it were a large</p> <p>9 Asian-American population in a district with a</p> <p>10 50 percent Asian-American VAP, may actually have a</p> <p>11 quite small Asian-American citizen population,</p> <p>12 would there be any reason not to use CVAP in that</p> <p>13 case?</p> <p>14 A. I don't know. All I'm reporting</p> <p>15 here is what my experience is, ah, when it's used,</p> <p>16 that it's areas where you've already crossed the</p> <p>17 50 percent VAP threshold and you're refining it for</p> <p>18 CVAP. I don't -- I don't -- I would have to think</p> <p>19 about it for Asian-Americans.</p> <p>20 Q. Okay. So you're only making the</p> <p>21 statement that it typically applies to large</p> <p>22 Hispanic populations based on what you've seen in</p> <p>23 other cases?</p> <p>24 A. Right. That's why I say it's in my</p>



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<p style="text-align: right;">Page 145</p> <p>1 experience.</p> <p>2 Q. So you have no opinion about what is</p> <p>3 the proper method to apply outside of just what you</p> <p>4 have seen?</p> <p>5 A. Well, I -- Yeah. I even say I'm not</p> <p>6 going to give an ultimate opinion on whether CVAP</p> <p>7 is an appropriate metric or not.</p> <p>8 What I will say is that no matter</p> <p>9 what, when you're using it, there are error margins</p> <p>10 associated with it that give un- -- that quantify</p> <p>11 the uncertainty we have in that point estimate.</p> <p>12 Q. So an example you cite where CVAP is</p> <p>13 used with large Hispanic populations, using CVAP in</p> <p>14 that instance works to lower the Hispanic</p> <p>15 population number versus VAP. Correct?</p> <p>16 A. Correct.</p> <p>17 Q. Is it necessary to combine the use</p> <p>18 of CVAP to only those cases where doing so acts to</p> <p>19 lower the minority population number as compared to</p> <p>20 that?</p> <p>21 A. That's something for the lawyers to</p> <p>22 fight about, I think. I think it becomes an</p> <p>23 interesting question when you have a district --</p> <p>24 That isn't raised typically, at</p>	<p style="text-align: right;">Page 147</p> <p>1 without doing a bunch more research, at least at</p> <p>2 the circuit court level, on when to use VAP versus</p> <p>3 CVAP.</p> <p>4 Q. Okay. I'm going to hand out --</p> <p>5 This is a memo that you and</p> <p>6 Dr. Grofman wrote to the Chief Justice and Justices</p> <p>7 of the Supreme Court of Virginia regarding</p> <p>8 redistricting maps, dated December 27, 2021.</p> <p>9 - - -</p> <p>10 Thereupon, a document was marked for</p> <p>11 purposes of identification as Exhibit 11 by the</p> <p>12 reporter.</p> <p>13 - - -</p> <p>14 BY MR. GENBERG:</p> <p>15 Q. Does this appear to be a true and</p> <p>16 correct copy of the memo that you wrote to the</p> <p>17 Chief Justice and Justices of the Supreme Court of</p> <p>18 Virginia?</p> <p>19 A. If "you" is in the plural, then,</p> <p>20 yes.</p> <p>21 Q. That you co-wrote?</p> <p>22 A. Yes.</p> <p>23 Q. And did you write this memo in</p> <p>24 connection with --</p>
<p style="text-align: right;">Page 146</p> <p>1 least in my experience, with Hispanic populations,</p> <p>2 where the VAP threshold is not crossed but the CVAP</p> <p>3 threshold is.</p> <p>4 Q. In situations where non-citizen</p> <p>5 Latinos or Asian-Americans in a district can raise</p> <p>6 the black CVAP share above the black VAP share, is</p> <p>7 black CVAP a useful metric for assessing a</p> <p>8 district's actual electorate?</p> <p>9 A. Well, again, if you're talking about</p> <p>10 the actual elected or eligible --</p> <p>11 I mean, it depends if you're talking</p> <p>12 about the eligible population.</p> <p>13 But whether it's useful or not isn't</p> <p>14 something I'm really opining on. I think that's a</p> <p>15 legal question for a judge to decide what happens</p> <p>16 when that VAP threshold isn't crossed but the CVAP</p> <p>17 is.</p> <p>18 What I will say is that the CVAP is</p> <p>19 always going to have these error margins.</p> <p>20 Now, let's say you had a situation</p> <p>21 with a 49.5 percent VAP and somehow a 60 percent</p> <p>22 BCVP. I think that's a really, really interesting</p> <p>23 question that lawyers or -- would have a wonderful</p> <p>24 fight about but that I wouldn't want to answer</p>	<p style="text-align: right;">Page 148</p> <p>1 A. Co-write.</p> <p>2 Q. Did you co-write this memo as a</p> <p>3 special master redrawing Virginia's congressional</p> <p>4 statehouse and state senate districts?</p> <p>5 A. Yes.</p> <p>6 Q. And you've emphasized "co-write"</p> <p>7 over "write" multiple times.</p> <p>8 Does this memo not reflect your</p> <p>9 opinions?</p> <p>10 A. So all I can say about this memo,</p> <p>11 because I have a pretty strict nondisclosure</p> <p>12 agreement, is that it was a joint effort between</p> <p>13 Dr. Grofman and I, ah, potentially with input from</p> <p>14 the Justices of the court. But I can't even say</p> <p>15 that since they're not on the "from" line. I can't</p> <p>16 discuss any conversations we had. Uhm, but we</p> <p>17 generally agreed on things. Uhm, there were some</p> <p>18 sources of disagreement, ah, but we usually worked</p> <p>19 something out we could live with that's -- that's</p> <p>20 listed in the memo.</p> <p>21 Q. Do you stand by everything in this</p> <p>22 memo as your own opinion, or do you not stand by</p> <p>23 it?</p> <p>24 A. Oh, I don't think everything in this</p>



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<p style="text-align: right;">Page 149</p> <p>1 memo is a perfect expression of my opinion, no.</p> <p>2 Q. Is there anything in this memo that</p> <p>3 you disagree with?</p> <p>4 A. Ah, we can walk through it and see</p> <p>5 if there's things.</p> <p>6 Q. All right. Well, I'll direct you to</p> <p>7 page 8, the last full paragraph, We also observe</p> <p>8 that the NAACP memo has called attention to</p> <p>9 differences between CVAP estimates of</p> <p>10 African-Americans proportions, parens, taken from</p> <p>11 2019 ACS data, close parens, and VAP estimates,</p> <p>12 parens, taken from the 2020 census, closed parens.</p> <p>13 We would simply note that (a) we have examined both</p> <p>14 VAP and CVAP data, and (b) that the presence of</p> <p>15 non-citizen Latinos and Asian-Americans in a</p> <p>16 district can raise the black CVAP share above the</p> <p>17 black VAP share, making it a useful metric for</p> <p>18 assessing a district's actual electorate.</p> <p>19 Did you co-write that statement?</p> <p>20 A. I co-wrote the memo. Obviously, not</p> <p>21 every --</p> <p>22 No word in this memo is co-written,</p> <p>23 so someone wrote that statement. But I don't -- I</p> <p>24 don't have -- The way it's wordsmithed, I don't</p>	<p style="text-align: right;">Page 151</p> <p>1 don't have error margins or error margins don't</p> <p>2 matter; you should use this for Gingles Prong 1,</p> <p>3 'cause we never drew a demonstration map.</p> <p>4 Q. What would be, then, the purpose of</p> <p>5 a metric for assessing a district's actual</p> <p>6 electorate?</p> <p>7 A. So at the NAACP, if you go read the</p> <p>8 NAACP memo, what they're concerned about is that --</p> <p>9 whether or not these districts perform or not.</p> <p>10 You know, this is in the context of</p> <p>11 the aftermath of the Personhuballah case,</p> <p>12 P-e-r-s-o-n-h-u-b-a-l-l-a-h case where the BVAPS in</p> <p>13 several districts were drawn down, and they were</p> <p>14 drawn down too far. The districts didn't perform,</p> <p>15 and that's actually how Republicans got control of</p> <p>16 the House of Representatives in the 2021 Virginia</p> <p>17 elections.</p> <p>18 And so this is a response to their</p> <p>19 memo, which is more concerned about performance,</p> <p>20 saying, Look, we looked at both, and it can be a</p> <p>21 useful metric in certain circumstances. It's not</p> <p>22 that for Gingles Prong 1 you should use the point</p> <p>23 estimate and ignore the error margins.</p> <p>24 Q. Okay. I'm just going to reread the</p>
<p style="text-align: right;">Page 150</p> <p>1 have a strong disagreement with it.</p> <p>2 Q. So, then, isn't it true that in</p> <p>3 situations where non-citizen Latinos in a district</p> <p>4 can raise the black CVAP share above the black VAP</p> <p>5 share, BCVP is a useful metric for assessing a</p> <p>6 district's actual electorate?</p> <p>7 A. So that's not quite what it says.</p> <p>8 It says that the presence of these</p> <p>9 non-citizen --</p> <p>10 This is in response to an NAACP memo</p> <p>11 that urged us not to use the ACS data, uhm, for</p> <p>12 the -- not to use the ACS data for the districts.</p> <p>13 And we said, Look, we looked -- You</p> <p>14 wanted us to look at VAP. We looked at both VAP</p> <p>15 and CVAP and satisfied ourselves. That's the first</p> <p>16 prong.</p> <p>17 And the second prong is just a</p> <p>18 reminder, like, the presence of non-citizen</p> <p>19 Latinos and Asian-Americans in a district can raise</p> <p>20 the black CVAP above the black VAP share, making it</p> <p>21 a useful -- in those circumstances, obviously,</p> <p>22 making it a useful metric for assessing a</p> <p>23 district's actual electorate.</p> <p>24 What it doesn't say is that these</p>	<p style="text-align: right;">Page 152</p> <p>1 statement, and I will do it with -- with -- with no</p> <p>2 changes in the words.</p> <p>3 "The presence of non-citizen Latinos</p> <p>4 and Asian-Americans in a district can raise the</p> <p>5 black CVAP share above the black VAP share, making</p> <p>6 it a useful metric for assessing a district's</p> <p>7 actual electorate." Okay?</p> <p>8 So is that what it says?</p> <p>9 A. That is what it says.</p> <p>10 Q. And where we have, quote, the</p> <p>11 presence of non-citizen Latinos and Asian-Americans</p> <p>12 in a district, dot, dot, dot --</p> <p>13 All right. Strike that.</p> <p>14 Where we have, quote, the presence</p> <p>15 of, quote, non-citizen Latinos and Asian-Americans</p> <p>16 in a district that can raise the black CVAP share</p> <p>17 above the black VAP share, is it a useful metric</p> <p>18 for assessing a district's actual electorate?</p> <p>19 A. When that circumstance occurs, it</p> <p>20 can be a useful metric for assessing a district's</p> <p>21 actual electorate.</p> <p>22 I'll just emphasize this is not a</p> <p>23 Gingles Prong 1 analysis. This is in response to</p> <p>24 concerns about performance of what would be</p>



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<p style="text-align: right;">Page 153</p> <p>1 remedial districts, ah, in a court case. So</p> <p>2 it's -- I do have to draw attention to the context,</p> <p>3 uhm, which is -- which is different than what we</p> <p>4 have in this case.</p> <p>5 Q. But the context and when to use that</p> <p>6 is a legal matter, isn't it?</p> <p>7 A. Oh, you guys -- you all can fight</p> <p>8 about that.</p> <p>9 I'm just saying that these are the</p> <p>10 equivalent of remedial districts. We never drew an</p> <p>11 illustrative map. We were quite explicit about</p> <p>12 that. And we never conducted a racially polarized</p> <p>13 voting analysis. We were also explicit about that</p> <p>14 in the first memo. We didn't have time. We drew</p> <p>15 race blind, and were trying to tell the NAACP that</p> <p>16 we're pretty confident these districts would</p> <p>17 perform whether you looked at VAP or BVAP -- or</p> <p>18 CVAP, rather.</p> <p>19 Q. If you were trying to determine that</p> <p>20 eligible voters were applying by citizenship, which</p> <p>21 metric would you use?</p> <p>22 A. Eligible voters by citizen --</p> <p>23 If it were eligible voters, I would</p> <p>24 look at -- I would incorporate felon</p>	<p style="text-align: right;">Page 155</p> <p>1 federal government, if any, has responsibility for</p> <p>2 enforcing the Voting Rights Act?</p> <p>3 A. I guess "enforcement" would be the</p> <p>4 executive branch.</p> <p>5 Q. Do you know which department?</p> <p>6 A. Probably the Civil Rights Division</p> <p>7 of the Department of Justice, but I could be wrong</p> <p>8 on that.</p> <p>9 Q. Does the Department of Justice have</p> <p>10 specialized expertise in enforcing the Voting</p> <p>11 Rights Act?</p> <p>12 A. Ah, yes.</p> <p>13 Q. Are you aware that the Department of</p> <p>14 Justice said in February 2021 that, quote, CVAP</p> <p>15 data from the ACS on which it is traditionally</p> <p>16 relied are adequate for its enforcement of</p> <p>17 Section 2 of the Voting Rights Act?</p> <p>18 A. I -- I am not aware of that.</p> <p>19 Q. Does that surprise you?</p> <p>20 A. No. I think it's fine to use CVAP</p> <p>21 data. You just have to use it properly and know</p> <p>22 that there are error margins that have real</p> <p>23 meaning.</p> <p>24 Q. Are you aware of DOJ using error</p>
<p style="text-align: right;">Page 154</p> <p>1 disenfranchisement status. If it were eligible</p> <p>2 voters defined by citizenship, I would look at CVAP</p> <p>3 taking account of disenfranchisement rates.</p> <p>4 At the same time, if there were some</p> <p>5 particularly important threshold that had to be</p> <p>6 crossed, you can't ignore the error margins.</p> <p>7 Q. And how would you take into account</p> <p>8 the disqualifying felony convictions?</p> <p>9 A. Well, if I were looking for eligible</p> <p>10 voters, I would have to figure out a way, but I've</p> <p>11 never done that.</p> <p>12 Q. Are you aware of it being possible?</p> <p>13 A. I don't know if it's possible or</p> <p>14 not, but then you can't -- if it's not possible,</p> <p>15 then you can't really get eligible voters.</p> <p>16 Q. Isn't it your view that it is</p> <p>17 necessary to determine -- determine the voter</p> <p>18 population refined by citizenship to ensure</p> <p>19 compliance with the Voting Rights Act?</p> <p>20 A. That is certainly the case in the</p> <p>21 9th Circuit where they want you using CVAP for your</p> <p>22 ecological inference data, yes, and you're --</p> <p>23 you're talking about Hispanic population.</p> <p>24 Q. Do you know which branch of the</p>	<p style="text-align: right;">Page 156</p> <p>1 margins on CVAP data?</p> <p>2 A. I don't know.</p> <p>3 Q. Have you ever utilized ACS data to</p> <p>4 compute CVAP estimates as counsel for the Arizona</p> <p>5 Districting Commission or as an expert witness?</p> <p>6 A. Can we break that down?</p> <p>7 Q. Have you ever utilized ACS data to</p> <p>8 compute CVAP estimates as counsel for the Arizona</p> <p>9 Districting Commission?</p> <p>10 A. So I've spoke with counsel for the</p> <p>11 ACS about the scope of privilege in my</p> <p>12 nondisclosure in that case. And I know you have a</p> <p>13 memo, and I can discuss things expressed within</p> <p>14 that memo. I cannot discuss discussions we had or</p> <p>15 things that went on behind the scene, which would</p> <p>16 include who did what. So I don't think I can</p> <p>17 answer that question the way you asked it.</p> <p>18 (Discussion held off the record.)</p> <p>19 BY MR. GENBERG:</p> <p>20 Q. Have you ever utilized ACS data to</p> <p>21 compute CVAP estimates as an expert witness?</p> <p>22 A. Yes.</p> <p>23 Q. In which cases?</p> <p>24 A. I believe certainly in the</p>



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<p style="text-align: right;">Page 157</p> <p>1 Washington case. I don't recall if I did it in the 2 Texas case or not. 3 Q. Can you recall any cases other than 4 the Washington case? 5 A. Oh, the Coca case, yeah; the 6 C-o-c-a, the Dodge City case. 7 Q. Okay. In the Washington case, did 8 you express any concern in your reports or 9 testimony that ACS CVAP data was unreliable? 10 A. Well, I don't think CVAP data is 11 unreliable. I think it comes with error margins. 12 And if you are in a situation where a specific 13 threshold is important, you have to take account of 14 those error margins. 15 And as we discussed earlier, I was 16 brought into the Washington case at the remedial 17 phase, well beyond the point where any Gingles 18 analysis was terribly relevant. 19 Q. In the -- in the Washington case, 20 did you express any concern in the reports or 21 testimony about this estimation of uncertainty in 22 the CVAP data? 23 A. Well, no, A, because we're in the 24 remedial phase, which is a little bit late to be</p>	<p style="text-align: right;">Page 159</p> <p>1 Q. And you didn't believe you needed to 2 report a margin of error with a -- reporting HCVAP 3 with that level of granularity? 4 A. No. I didn't even understand why we 5 were doing HCVAP at this point in the litigation, 6 but -- because whether it's -- or not it's greater 7 than 50 percent or 55 percent or 60 percent, it 8 wasn't relevant to my understanding. 9 But, yeah, those are the point 10 estimates. 11 They do have error margins attached 12 to them, but just -- I don't think it's relevant to 13 a remedial phase. 14 (Discussion held off the record.) 15 BY MR. GENBERG: 16 Q. Okay. Let's -- let's turn to 17 traditional redistricting criteria. 18 In your opinion, what makes a 19 district reasonably configured? 20 A. Ah, whether it adheres to 21 traditional redistricting criteria. 22 Q. Okay. And what makes a 23 redistricting plan reasonably configured? 24 A. Oh. Whether the districts</p>
<p style="text-align: right;">Page 158</p> <p>1 bringing up some collateral attack on the data; and 2 I certainly wasn't asked to do that. And more 3 importantly, we're well passed Gingles 1 at that 4 point. 5 From what I understand, your 6 remedial districts can go below 50 percent. I 7 understand there's some dispute between 8 conservative and liberal lawyers about that, but 9 the -- that's my understanding. 10 MR. GENBERG: All right. Let's go 11 to the Washington report. 12 Could you mark this the next 13 exhibit. 14 - - - 15 Thereupon, a document was marked for 16 purposes of identification as Exhibit 12 by the 17 reporter. 18 - - - 19 BY MR. GENBERG: 20 Q. Okay. If we turn to page 16. 21 A. Uh-huh. 22 Q. You calculated HCVAP to the tenth of 23 the percentage point. Correct? 24 A. Correct.</p>	<p style="text-align: right;">Page 160</p> <p>1 themselves -- 2 As a general proposition, like, 3 devoid of any legal meaning, I guess if the 4 districts adhere to traditional redistricting 5 criteria. 6 Q. Okay. How would you define the term 7 "traditional redistricting criteria"? 8 A. Well, that's a much better question, 9 because there's different interpretations that have 10 been suggested over time. Ah, the kind of -- 11 So, like, whether population 12 equality is a traditional redistricting principle 13 is a really good, interesting question, because for 14 a good chunk of our country's history, we didn't 15 have equipopulous districts. But I think most 16 people -- equipopulous -- most people these days 17 would consider that at least within their 18 discussion of traditional redistricting criteria. 19 The more kind of traditional ones 20 are, ah, contiguity, compactness, respect for 21 communities of interest. 22 Uhm, sometimes people have accepted 23 incumbency as a traditional concern. Other times 24 not.</p>



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<p style="text-align: right;">Page 161</p> <p>1 Uhm, whether compliance with the</p> <p>2 Voting Rights Act is really a traditional</p> <p>3 redistricting principle, sometimes you'll see it</p> <p>4 listed and sometimes not.</p> <p>5 There may be others. Those are the</p> <p>6 ones I can think of as I sit here.</p> <p>7 Respect for mu- -- for municipal</p> <p>8 boundaries and county boundaries.</p> <p>9 Q. What about avoiding the split of</p> <p>10 census-designated places?</p> <p>11 A. Now -- now you're into a good</p> <p>12 question, because a lot of places will specifically</p> <p>13 list, uhm, you know, cities, towns, and county</p> <p>14 lines. Whether you include census-designated</p> <p>15 places in that or not, ah, probably varies by</p> <p>16 state. At least that's my recollection.</p> <p>17 Q. Well, who do you think should be</p> <p>18 defining what the traditional redistricting</p> <p>19 criteria are?</p> <p>20 A. Well, I suppose it depends on the</p> <p>21 context. Uhm, you know, for purposes of their own</p> <p>22 state constitution, you know, a state Supreme Court</p> <p>23 could interpret it. I think a legislat- -- the</p> <p>24 legislature can set out guidelines.</p>	<p style="text-align: right;">Page 163</p> <p>1 think so.</p> <p>2 Q. Avoiding voter tabulation district</p> <p>3 splits, is that a traditional redistricting</p> <p>4 criterion?</p> <p>5 A. Uhm, I think the precinct data is</p> <p>6 probably more relevant, because the VTDs are a</p> <p>7 census artifact that usually correspond with</p> <p>8 precincts at least at the beginning of the map's</p> <p>9 life or the census' life, but not necessarily.</p> <p>10 Q. In your opinion, is avoiding the</p> <p>11 split of landmark areas a traditional redistricting</p> <p>12 criterion?</p> <p>13 A. I hadn't considered that.</p> <p>14 Q. In your opinion, is preserving the</p> <p>15 course of prior district a traditional</p> <p>16 redistricting criterion?</p> <p>17 A. See, that's another one where I</p> <p>18 think you get disagreement on that.</p> <p>19 Uhm, I think, for example, in</p> <p>20 Virginia, we were pretty emphatic that we weren't</p> <p>21 going to use district cores, if I recall correctly,</p> <p>22 in that memo. So I don't know what federal courts</p> <p>23 have ruled on that, though.</p> <p>24 Q. In your opinion, is observing</p>
<p style="text-align: right;">Page 162</p> <p>1 For purposes of federal law? Uhm,</p> <p>2 I mean, my gut says that would be a federal -- a</p> <p>3 federal demand. I mean, that's certainly the case</p> <p>4 in terms of equal population and compliance with</p> <p>5 the Voting Rights Act if we include that. Uhm --</p> <p>6 Q. Do you think that the Alabama</p> <p>7 redistricting committee policy decisions would have</p> <p>8 a role in what are traditional redistricting</p> <p>9 criteria in Alabama?</p> <p>10 A. Yeah, we did this weird thing in a</p> <p>11 lot of the cases where you rely on the state's use</p> <p>12 of compactness overall or whatever is the benchmark</p> <p>13 for compactness. And that just seemed really weird</p> <p>14 to me, because you might have a state that's</p> <p>15 engaging in a grotesque gerrymandering, and I don't</p> <p>16 know why that -- why a federal court would use that</p> <p>17 as a benchmark for compactness. I think that's a</p> <p>18 thorny issue.</p> <p>19 Q. In your opinion, is avoiding</p> <p>20 precinct splits a traditional redistricting</p> <p>21 criterion?</p> <p>22 A. Again, that's -- you know, that's</p> <p>23 something that falls more into, I think, a gray</p> <p>24 area. Uhm, I tend to think so. Uhm, I tend to</p>	<p style="text-align: right;">Page 164</p> <p>1 natural boundaries such as rivers a traditional</p> <p>2 redistricting criterion?</p> <p>3 A. That's -- that is often used as a</p> <p>4 traditional redistricting criteria, yeah.</p> <p>5 Q. Is it something you generally</p> <p>6 consider if you're drawing a map?</p> <p>7 A. Yeah. It's a -- it's a</p> <p>8 consideration that I would use, yes.</p> <p>9 So, for example, in Virginia, we</p> <p>10 paid attention to the Appalachian Ridge -- or</p> <p>11 the -- the Blue Ridge, because it had a history of</p> <p>12 delineating separate regions of Virginia.</p> <p>13 Q. And you mentioned earlier that equal</p> <p>14 population could be considered a traditional</p> <p>15 redistricting criterion.</p> <p>16 Would minimizing the deviations in</p> <p>17 population between districts be a traditional</p> <p>18 redistricting criterion?</p> <p>19 A. I don't know about minimizing them.</p> <p>20 Q. Would it -- Would there be -- Would</p> <p>21 it enhance the -- the map from a traditional</p> <p>22 redistricting principle standpoint for the</p> <p>23 deviations to be closer to zero than to be, say,</p> <p>24 near the ten percent overall number?</p>



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<p style="text-align: right;">Page 165</p> <p>1 A. Again, I -- I just don't know. I 2 don't have an opinion on that. 3 There -- there's some redistricting 4 principles that are more widespread that I think I 5 can more easily speak to; but whether there -- 6 whether minimizing the differences is a traditional 7 principle or whether, you know, getting it as close 8 to zero as possible is a traditional concern, I 9 don't know. 10 Like I said, you could even argue to 11 me that it's not, since for most traditional 12 concern, it's just a constitutional concern. And I 13 could -- I could be persuaded of that depending on 14 the day of the week. 15 These traditional principles aren't 16 terribly well-defined. I think the only -- I think 17 the only rigorous attempt at defining them was 18 Chen's article in the two -- in the 2010s Jowei, 19 J-o-w-e-i. 20 Q. Do you intend to offer an opinion on 21 contiguity in any of Mr. Fairfax's illustrative 22 plans? 23 A. I -- As I sit here, I certainly 24 don't.</p>	<p style="text-align: right;">Page 167</p> <p>1 that any of Mr. Fairfax's plans avoid precinct 2 splits? 3 A. Uhm, I think there are some 4 references in the second report to precinct splits 5 and the impact it has on his ability to achieve a 6 50-percent-plus-one VAP, BVAP district; so to that 7 extent, yes. 8 Q. Do you intend to offer an opinion 9 that Mr. Fairfax's -- any of Mr. Fairfax's 10 illustrative plans perform poorly on a precinct 11 split metric? 12 A. Ah, other than noting that precincts 13 are being split specifically to -- or appear to be 14 split specifically and only to achieve a set racial 15 target, no. 16 Q. Do you intend to offer an opinion 17 that any of Mr. Fairfax's illustrative plans 18 perform poorly from the standpoint of splitting 19 voter tabulation districts? 20 A. I haven't examined voter tabulation 21 districts at all. That's -- 22 I shouldn't say that. 23 I haven't examined voter tabulation 24 district splits at all.</p>
<p style="text-align: right;">Page 166</p> <p>1 Q. Do you intend to offer an opinion on 2 the respect for city and town lines in any of 3 Mr. Fairfax's illustrative plans? 4 A. Maybe obliquely. I think some of 5 my, ah, analyses talk about him going -- going into 6 Decatur, Athens, places like that; but I don't 7 think I ever strictly tabulated the number of place 8 splits. 9 Q. Do you intend to offer an opinion 10 that any of Mr. Fairfax's illustrative plans do not 11 respect city and town lines? 12 A. Aside -- Not a direct opinion like 13 that, that's not my intent. 14 Q. Do you intend to offer an opinion 15 that any of Mr. Fairfax's illustrative plans avoid 16 the split of census-designated places? 17 A. No. I haven't looked at 18 census-designated places at all. 19 Q. Do you intend to offer an opinion 20 on -- that any of Mr. Fairfax's illustrative plans 21 avoid the split of landmark areas? 22 A. I haven't looked at landmark areas 23 at all. 24 Q. Do you intend to offer an opinion</p>	<p style="text-align: right;">Page 168</p> <p>1 Q. Do you intend to offer an opinion on 2 any of Mr. Fairfax's illustrative plans' 3 observation of natural boundaries such as rivers? 4 A. I don't think I looked at all into 5 when it crosses rivers and when it doesn't; so, no. 6 Q. Do you intend to offer an opinion on 7 any of Mr. Fairfax's illustrative plans' respect 8 for communities of interest? 9 A. No. 10 Q. Do you intend to offer an opinion on 11 any of Mr. Fairfax's illustrative plans' avoidance 12 of the pairing of incumbents? 13 A. No. 14 Q. Do you intend to offer an opinion on 15 any of Mr. Fairfax's illustrative plans' 16 preservation of the cores of prior districts? 17 A. No. 18 Q. Do you intend to offer an opinion on 19 any of Mr. Fairfax's illustrative plans' 20 preservation of cores of enacted districts? 21 A. Ah, that -- Only obliquely to the 22 extent that I mentioned that's -- you know, a lot 23 of the districts are unchanged; and so I focused my 24 analysis on the districts that were, in fact,</p>



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<p style="text-align: right;">Page 169</p> <p>1 changed.</p> <p>2 Q. Do you intend to offer an opinion on</p> <p>3 any of Mr. Fairfax's illustrative plans' population</p> <p>4 deviations?</p> <p>5 A. Ah, I actually don't remember at --</p> <p>6 at this point in the deposition; but if it's not in</p> <p>7 the report, then, no.</p> <p>8 Q. I'll represent that I don't remember</p> <p>9 seeing it in the report.</p> <p>10 That doesn't surprise you that it's</p> <p>11 not in the report?</p> <p>12 A. That -- that doesn't surprise me.</p> <p>13 Q. Okay. Okay. I think we have a</p> <p>14 fairly lengthy list here of traditional</p> <p>15 redistricting criteria that you did not analyze in</p> <p>16 this case. I'll go through, and correct me if I've</p> <p>17 mistaken any of this.</p> <p>18 A. Oh, God.</p> <p>19 Q. All right. You did not analyze</p> <p>20 contiguity?</p> <p>21 A. I didn't analyze contiguity.</p> <p>22 Q. You did not analyze city and town</p> <p>23 lines except for an oblique reference?</p> <p>24 A. That is correct.</p>	<p style="text-align: right;">Page 171</p> <p>1 A. Correct.</p> <p>2 Q. You did not analyze the illustrative</p> <p>3 plans' respect for communities of interest?</p> <p>4 A. Correct.</p> <p>5 Q. You did not analyze the illustrative</p> <p>6 plans' avoiding the pairing of incumbents?</p> <p>7 A. Correct.</p> <p>8 Q. You did not analyze the illustrative</p> <p>9 plans' preservation of cores of prior districts?</p> <p>10 A. Correct.</p> <p>11 Q. And you did not analyze the extent</p> <p>12 to which the illustrative plans minimize population</p> <p>13 deviation?</p> <p>14 A. Correct.</p> <p>15 Q. Why didn't you analyze these</p> <p>16 traditional redistricting criteria as part of your</p> <p>17 analysis of Mr. Fairfax's plans?</p> <p>18 A. Well, some of those, I think I'm</p> <p>19 unsure whether they're even traditional</p> <p>20 redistricting criteria. And beyond that, ah, I --</p> <p>21 I just didn't look at them.</p> <p>22 Q. Okay.</p> <p>23 A. Some of them are difficult to do in</p> <p>24 an expert, slash, quantitative manner. Like, I</p>
<p style="text-align: right;">Page 170</p> <p>1 Q. You did not analyze splitting of</p> <p>2 census-designated places?</p> <p>3 A. Correct.</p> <p>4 Q. You did not analyze the splitting of</p> <p>5 landmark areas?</p> <p>6 A. Correct.</p> <p>7 Q. You did not analyze the splitting of</p> <p>8 precinct splits except for your opinion that those</p> <p>9 splits may indicate racial predominance?</p> <p>10 A. Correct.</p> <p>11 Q. You did not analyze the splits of</p> <p>12 voter tabulation districts?</p> <p>13 A. And to be specific --</p> <p>14 Sorry. Racial predominance; but I</p> <p>15 think when you're talk- --</p> <p>16 I think I said the only reasons</p> <p>17 those dis- -- those precincts would have been split</p> <p>18 is to achieve the racial goal, which I think is --</p> <p>19 could be racial predominance, but it could also be</p> <p>20 a subversion of traditional redistricting</p> <p>21 principles to the racial goals.</p> <p>22 Q. You did not analyze the illustrative</p> <p>23 plans' observation of natural boundaries such as</p> <p>24 rivers?</p>	<p style="text-align: right;">Page 172</p> <p>1 don't know how you quantify respect for district</p> <p>2 boundaries. Uhm, so that's part -- certainly part</p> <p>3 of it.</p> <p>4 I mean, the districts certainly</p> <p>5 appear to be contiguous, so I don't think there's</p> <p>6 much to analyze there, just as some examples.</p> <p>7 Q. Okay. You testified that respect</p> <p>8 for city and town lines is a traditional</p> <p>9 redistricting criterion, and you obliquely looked</p> <p>10 at -- at that. Right?</p> <p>11 A. Correct.</p> <p>12 Q. So why didn't you analyze respect</p> <p>13 for city and town lines in a more extensive manner?</p> <p>14 A. Well, I focused my analysis on -- on</p> <p>15 compactness and the way the district's drawn.</p> <p>16 Q. Okay. And you testified that</p> <p>17 avoiding the split of census-designated places was</p> <p>18 probably a traditional redistricting criteria.</p> <p>19 Correct?</p> <p>20 A. I don't know if that was my</p> <p>21 testimony. I -- I honestly don't remember.</p> <p>22 Q. Okay.</p> <p>23 A. I think -- I think the way I put it</p> <p>24 was that sometimes you would -- you might see that</p>



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<p style="text-align: right;">Page 173</p> <p>1 and sometimes you don't.</p> <p>2 Q. Okay. I think I had it that it</p> <p>3 prob- -- probably, and it varies by maybe the</p> <p>4 jurisdiction.</p> <p>5 But why didn't you analyze the split</p> <p>6 of census-designated places in the illustrative</p> <p>7 plans?</p> <p>8 A. Probably didn't have time to do much</p> <p>9 more than I did. Probably not what I was --</p> <p>10 And I wouldn't have been asked to do</p> <p>11 something like that. I know there's other experts</p> <p>12 in the case. I don't know what they were doing.</p> <p>13 Q. And observation of natural</p> <p>14 boundaries such as rivers is a traditional</p> <p>15 redistricting criteria. Correct?</p> <p>16 A. Yes.</p> <p>17 Q. Why didn't you analyze that</p> <p>18 criterion in this case in Mr. Fairfax's</p> <p>19 illustrative plans?</p> <p>20 A. I know there's other experts in the</p> <p>21 case, and I don't know what they're doing. I</p> <p>22 focused mine on compactness partially because I</p> <p>23 didn't have a lot of time to do, ah, much more.</p> <p>24 And partially, like I said, I don't even know how</p>	<p style="text-align: right;">Page 175</p> <p>1 They all have their drawbacks, too;</p> <p>2 but they at least avoid the kind of post hoc</p> <p>3 rationalization that can really be a problem when</p> <p>4 you're talking about communities of interest.</p> <p>5 I was in a --</p> <p>6 And just to give you an example, in</p> <p>7 the Michigan case, there is an instance where on</p> <p>8 the record one of the independent redistricting</p> <p>9 commissioners said, So I -- I think what I'm</p> <p>10 hearing you say is that we can't discuss we're</p> <p>11 replacing black individuals, but we can talk about</p> <p>12 replace where black people live, and that's</p> <p>13 communities of interest, and that's fine for us to</p> <p>14 talk about.</p> <p>15 And one of the commissioners says, I</p> <p>16 think -- I think that's exactly right, and that's</p> <p>17 how they did it.</p> <p>18 Communities of interest, that</p> <p>19 loosey-goosey can be used to justify almost</p> <p>20 anything; and I would hope that over the course of</p> <p>21 the next couple decades, we move away from that</p> <p>22 approach, but.</p> <p>23 Q. Why didn't you apply the methods in</p> <p>24 your dissertation to assessing communities of</p>
<p style="text-align: right;">Page 174</p> <p>1 you quantify river crossings.</p> <p>2 Q. And respect for communities of</p> <p>3 interest is a traditional redistricting criterion.</p> <p>4 Correct?</p> <p>5 A. Yes. Well, so I think that's one</p> <p>6 that Chen said was not in his approach, but I tend</p> <p>7 to think it is.</p> <p>8 Q. And why didn't you analyze the</p> <p>9 respect for communities of interest in</p> <p>10 Mr. Fairfax's illustrative plans?</p> <p>11 A. Well, the way that most courts do</p> <p>12 it, I don't think I have the knowledge base in</p> <p>13 Alabama to do that.</p> <p>14 You know, I -- I offer in my</p> <p>15 dissertation what I think are some more -- some</p> <p>16 better ways to do it, uhm, but wasn't eager to</p> <p>17 trot -- trot those out today.</p> <p>18 Q. And what are those?</p> <p>19 A. Uhm, you could do a factor analysis</p> <p>20 off of demographics to try to, ah, explore</p> <p>21 commonalities on the districts.</p> <p>22 You can look at -- There's this</p> <p>23 place called representable where people draw their</p> <p>24 own ideas of communities of interest.</p>	<p style="text-align: right;">Page 176</p> <p>1 interest?</p> <p>2 A. Because they aren't programmed into</p> <p>3 most of the redistricting software right now.</p> <p>4 Q. And why didn't you analyze the</p> <p>5 pairing of incumbents in the illustrative plans?</p> <p>6 A. Uhm, that didn't even occur to me.</p> <p>7 And like I said, I'm not entirely sure that</p> <p>8 incumbents really qualifies as a traditional --</p> <p>9 avoiding incumbent pairing qualifies as a</p> <p>10 traditional redistricting principal.</p> <p>11 Q. And why didn't you analyze the</p> <p>12 preservation of the cores of the prior districts in</p> <p>13 Mr. Fairfax's illustrative plans?</p> <p>14 A. Well, I think I have a memo right</p> <p>15 here disclaiming core retention, just like it</p> <p>16 disclaims incumbent pairing. I think there's some</p> <p>17 differences because it's a Virginia-specific, ah,</p> <p>18 ah, analysis. But give you one more thing to</p> <p>19 cross-examine me on for not necessarily a lot of</p> <p>20 payoff.</p> <p>21 Q. Do you not think that disclaiming</p> <p>22 core retention should be a traditional</p> <p>23 redistricting criteria?</p> <p>24 A. That's a tough -- That -- that</p>



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<p style="text-align: right;">Page 177</p> <p>1 honestly is a tough question.</p> <p>2 Certainly in Virginia where you had</p> <p>3 a state constitutional amendment banning</p> <p>4 gerrymandering, doing core retention off of</p> <p>5 gerrymandered districts would have frustrated the</p> <p>6 goals of the independent redistricting commission.</p> <p>7 I think you have places like</p> <p>8 Kentucky where the lines have been drawn pretty</p> <p>9 much the same by Republicans and Democrats over the</p> <p>10 course of the last 30 years where it's potentially</p> <p>11 a different story. But it's really, ah, a</p> <p>12 case-specific inquiry.</p> <p>13 Like in Kentucky, the -- the</p> <p>14 districts there correspond nicely with long-time</p> <p>15 recognized geographic areas of the state. So I can</p> <p>16 understand why they keep the cores intact there.</p> <p>17 And there are some other states where the districts</p> <p>18 have been pretty much consistent regardless of who</p> <p>19 is drawing the lines.</p> <p>20 I don't know enough about Alabama's</p> <p>21 state senate district history to know whether</p> <p>22 that's the case here or not.</p> <p>23 Q. Do you agree that while drawing a</p> <p>24 map adhering to one redistricting criterion often</p>	<p style="text-align: right;">Page 179</p> <p>1 comes at the expense of drawing compact districts,</p> <p>2 particularly at the congressional level; resulting</p> <p>3 district will perform poorly on certain compactness</p> <p>4 standards (many of which are based upon</p> <p>5 approximating circular districts). Tradeoffs are</p> <p>6 simply inevitable.</p> <p>7 So in this case in Virginia, you</p> <p>8 found that the principle of compactness and the</p> <p>9 preservation of community of interest came into</p> <p>10 conflict. Correct?</p> <p>11 A. Yeah, it's possible for them to come</p> <p>12 into conflict; and this is an example of when it</p> <p>13 happened. Yeah.</p> <p>14 Q. And in this case, you prioritize the</p> <p>15 preservation of the community of interest over the</p> <p>16 compactness of the district. Correct?</p> <p>17 A. So the Shenandoah region was</p> <p>18 identified --</p> <p>19 If you go back, I think this is in</p> <p>20 the first memo.</p> <p>21 -- was identified in part because of</p> <p>22 its historical importance and in part because it</p> <p>23 had historically been used as a tool for</p> <p>24 gerrymandering, which is kind of what our first</p>
<p style="text-align: right;">Page 178</p> <p>1 comes into conflict with adhering to others?</p> <p>2 A. Yes.</p> <p>3 Q. And can you give me an example of</p> <p>4 how that may happen?</p> <p>5 A. Well, I guess the easiest would be</p> <p>6 one-person/one-vote comes into conflict with county</p> <p>7 and municipal boundary splits.</p> <p>8 Q. And how about district compactness</p> <p>9 and other criterion?</p> <p>10 A. Ah, it would -- it would depend on,</p> <p>11 ah, the area and what criteria you're talking</p> <p>12 about.</p> <p>13 Q. Well, would it be possible for</p> <p>14 district compactness and the preservation of</p> <p>15 community of interest to come into conflict?</p> <p>16 A. I guess it's possible.</p> <p>17 Q. Bring back up the -- the Virginia</p> <p>18 exhibit, Exhibit 11. If you could turn to page 10,</p> <p>19 under the Optimization heading, --</p> <p>20 A. Uh-huh.</p> <p>21 Q. -- We emphasize the tension between</p> <p>22 the criteria. We identified preservation of the</p> <p>23 Shenandoah region as reflecting an important</p> <p>24 community of interest worth preserving. Yet that</p>	<p style="text-align: right;">Page 180</p> <p>1 goal here was, or our first order of business was</p> <p>2 to avoid drawing a gerrymander.</p> <p>3 The Shenandoah region is also one</p> <p>4 where I don't think any reasonable person would</p> <p>5 dispute that its historic community -- it's one of</p> <p>6 the most oldest in the country -- so there's very</p> <p>7 little chance that this was actually some</p> <p>8 after-the-fact post hoc justification on our part.</p> <p>9 Q. Okay. So --</p> <p>10 A. So there was a lot that went into</p> <p>11 that decision on the Shenandoah.</p> <p>12 Q. So in the case of a community of</p> <p>13 interest of -- that was in the words of the memo,</p> <p>14 quote, important, the community of interest</p> <p>15 criterion was prioritized over a compactness</p> <p>16 criterion in this case.</p> <p>17 A. Well, yes. But that comes in the</p> <p>18 context of two 65-page memos on why it was</p> <p>19 important and worth preserving, and so -- and other</p> <p>20 considerations that we had had -- or other</p> <p>21 discussions we had had that don't go into the memo.</p> <p>22 So, yeah, there can certainly be</p> <p>23 times when a community of interest is something</p> <p>24 that might trump a concern about district</p>



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<p style="text-align: right;">Page 181</p> <p>1 compactness, uhm, at least in terms of the universe</p> <p>2 of traditional redistricting criteria, but that</p> <p>3 doesn't mean that it's a bright-line rule, either.</p> <p>4 - - -</p> <p>5 Thereupon, a document was marked for</p> <p>6 purposes of identification as Exhibit 13 by the</p> <p>7 reporter.</p> <p>8 - - -</p> <p>9 BY MR. GENBERG:</p> <p>10 Q. Does this appear to be a true and</p> <p>11 correct copy of your expert work in Milligan v.</p> <p>12 Allen during the interim remedial phase?</p> <p>13 A. Yes.</p> <p>14 Q. And you were retained by the Alabama</p> <p>15 Attorney General in this case to evaluate the</p> <p>16 state's proposed congressional remedial plan and</p> <p>17 compare it to the state's plan enacted in 2021</p> <p>18 illustrative plans submitted by the plaintiffs'</p> <p>19 experts and the plaintiffs' proposed remedial plan?</p> <p>20 A. Yes.</p> <p>21 Q. And when undertaking this analysis,</p> <p>22 you didn't only analyze one factor. Right?</p> <p>23 A. That's right.</p> <p>24 Q. You analyzed geographic compactness,</p>	<p style="text-align: right;">Page 183</p> <p>1 I'm sure I would have ended up in the same place.</p> <p>2 For other things, like, I doubt</p> <p>3 analysis of river boundaries would change anything.</p> <p>4 Like I said, I don't even know how you do that in a</p> <p>5 rigorous manner. Uhm, so.</p> <p>6 Q. Are there not compactness measures</p> <p>7 to take into account rivers?</p> <p>8 A. I used the removed edges metric,</p> <p>9 which is in part designed for that.</p> <p>10 Q. Let's turn to Exhibit 3,</p> <p>11 Mr. Fairfax's opinion regarding his Illustrative</p> <p>12 Plan 1. And turn to page 38.</p> <p>13 Do you disagree with Mr. Fairfax's</p> <p>14 opinion that his Illustrative Plan 1 is contiguous?</p> <p>15 A. I don't disagree.</p> <p>16 Q. Do you disagree with Mr. Fairfax's</p> <p>17 opinion that his Illustrative Plan 1 has reasonably</p> <p>18 geographically compact districts?</p> <p>19 A. I don't agree or disagree.</p> <p>20 Q. Do you disagree with his opinion</p> <p>21 that the two illustrative districts in Plan 1,</p> <p>22 which are Districts 7 and 25, are more compact than</p> <p>23 the analogous districts in the enacted plan?</p> <p>24 A. I don't agree or disagree.</p>
<p style="text-align: right;">Page 182</p> <p>1 county splits, and the preservation of communities</p> <p>2 of interest in this case. Right?</p> <p>3 A. Correct.</p> <p>4 Q. Okay.</p> <p>5 A. But as I say, on page 11, that's</p> <p>6 what I was asked to look at.</p> <p>7 Q. And you were not asked to look into</p> <p>8 that here?</p> <p>9 A. I don't know if I can answer that.</p> <p>10 THE WITNESS: What do you think?</p> <p>11 Mr. Seiss: No. That would be</p> <p>12 covered by the privilege. I would instruct you not</p> <p>13 to answer.</p> <p>14 Q. Do you know what effect analyzing</p> <p>15 the traditional redistricting criteria that you did</p> <p>16 not analyze here would have had on your opinion of</p> <p>17 the illustrative plans?</p> <p>18 A. Uhm, that's kind of a weird</p> <p>19 question.</p> <p>20 Uhm, I guess intrinsically you don't</p> <p>21 know what the analysis you don't do is going to</p> <p>22 show. But for some things, I can't imagine that</p> <p>23 analyzing contiguity would have changed anything</p> <p>24 because the districts look contiguous to me. So</p>	<p style="text-align: right;">Page 184</p> <p>1 Q. Do you disagree that District 25 is</p> <p>2 more compact for Reock, Polsby-Popper, and Convex</p> <p>3 Hull scores than the analogous district in the</p> <p>4 enacted plan?</p> <p>5 A. Where are we?</p> <p>6 Q. So now we're actually on 45,</p> <p>7 paragraph -- sorry -- 40 -- page 47, paragraph 89.</p> <p>8 A. Okay. What was the question?</p> <p>9 Q. Do you disagree with his opinion</p> <p>10 that District 25 is more compact for Reock,</p> <p>11 Polsby-Popper and Convex Hull than at the analogous</p> <p>12 district in the enacted plan?</p> <p>13 A. I don't agree or disagree.</p> <p>14 Q. Do you disagree that District 7 in</p> <p>15 the Illustrative Plan 1 is more compact for Reock</p> <p>16 and Polsby-Popper than the analogous plan in -- or</p> <p>17 the analogous district in the enacted plan?</p> <p>18 A. I don't agree or disagree.</p> <p>19 Q. Do you disagree with Mr. Fairfax's</p> <p>20 opinion that the Illustrative Plan 1 has nine</p> <p>21 districts that are more compact than the enacted</p> <p>22 plan counterparts while the enacted plan has more</p> <p>23 than five districts that are more compact within</p> <p>24 the analogous districts in the enacted plan?</p>



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<p style="text-align: right;">Page 185</p> <p>1 A. I don't agree or disagree.</p> <p>2 Q. Do you disagree with his opinion</p> <p>3 that comparing the means of the plan's district</p> <p>4 compactness measures, the Illustrative Plan 1 and</p> <p>5 the enacted plans are similarly compact?</p> <p>6 A. I don't agree or disagree.</p> <p>7 Q. Do you disagree with Mr. Fairfax's</p> <p>8 opinion that all majority black districts in the</p> <p>9 Illustrative Plan 1 are reasonably compact?</p> <p>10 A. I don't agree or disagree.</p> <p>11 Q. Do you disagree with Mr. Fairfax's</p> <p>12 opinion that Illustrative 1 -- Illustrative Plan 1</p> <p>13 sufficiently preserves cities, towns, and</p> <p>14 census-designated places?</p> <p>15 A. I don't agree or disagree.</p> <p>16 Q. Do you disagree with his opinion</p> <p>17 that Illustrative Plan 1 splits 105 cities, towns,</p> <p>18 in census-designated places, whereas the enacted</p> <p>19 plan splits 100 cities, towns, and census-</p> <p>20 designated places?</p> <p>21 A. I don't agree or disagree.</p> <p>22 Q. Do you disagree that with</p> <p>23 Mr. Fairfax's opinion that Illustrative Plan 1</p> <p>24 respects landmark areas?</p>	<p style="text-align: right;">Page 187</p> <p>1 Q. Do you disagree with Mr. Fairfax's</p> <p>2 opinion that his Plan 1 contains identically 20 of</p> <p>3 the enacted plan's 35 districts maintains between</p> <p>4 53.88 percent and 99.66 percent of 11 enacted</p> <p>5 districts and that only four districts in</p> <p>6 Illustrative Plan 1 have less than 50 percent of</p> <p>7 the correlated enacted plan's district?</p> <p>8 A. I don't agree or disagree.</p> <p>9 Q. Do you disagree with Mr. Fairfax's</p> <p>10 opinion that his Illustrative Plan 1 performs</p> <p>11 satisfactorily when minimizing incumbent pairings?</p> <p>12 A. I don't agree or disagree.</p> <p>13 Q. Do you disagree with Mr. Fairfax's</p> <p>14 opinion that his Plan 1 only pairs two incumbents</p> <p>15 in one district?</p> <p>16 A. I don't agree or disagree.</p> <p>17 Q. Do you disagree with Mr. Fairfax's</p> <p>18 opinion that his Illustrative Plan 1 has a</p> <p>19 population deviation of 9.73 percent, which is</p> <p>20 lower than the enacted plan's population deviation</p> <p>21 of 9.97 percent?</p> <p>22 A. I don't agree or disagree.</p> <p>23 Q. Do you disagree with Mr. Fairfax's</p> <p>24 opinion that Illustrative District 7 follows the</p>
<p style="text-align: right;">Page 186</p> <p>1 A. Uhm, I don't now; but by the time we</p> <p>2 get through Plans 2 and 3, I might.</p> <p>3 Q. Do you disagree with Mr. Fairfax's</p> <p>4 opinion that his Illustrative Plan 1 splits 93</p> <p>5 landmark areas and the enacted plan splits 99?</p> <p>6 A. I don't agree or disagree.</p> <p>7 Q. Do you disagree with Mr. Fairfax's</p> <p>8 opinion that his Illustrative Plan 1 minimizes</p> <p>9 voter tabulation district splits?</p> <p>10 A. I don't agree or disagree.</p> <p>11 Q. Do you disagree with his opinion</p> <p>12 that his Illustrative Plan 1 splits 11 VTDs?</p> <p>13 A. I don't agree or disagree.</p> <p>14 Q. And that the enacted plan splits 13</p> <p>15 VTDs?</p> <p>16 A. I don't agree or disagree.</p> <p>17 Q. Do you disagree with Mr. Fairfax's</p> <p>18 opinion that his Plan 1 minimizes county line</p> <p>19 splits?</p> <p>20 A. I don't agree or disagree.</p> <p>21 Q. Do you disagree with his opinion</p> <p>22 that his Illustrative Plan 1 splits 19 counties and</p> <p>23 the enacted plan splits 19 counties?</p> <p>24 A. I don't agree disagree.</p>	<p style="text-align: right;">Page 188</p> <p>1 natural boundary of the Tennessee River from the</p> <p>2 Redstone Arsenal to the city of Decatur?</p> <p>3 A. Is this Map 1?</p> <p>4 Q. Correct.</p> <p>5 A. I agree with that.</p> <p>6 Q. Do you disagree with Mr. Fairfax's</p> <p>7 opinion that his Illustrative Plan 1 wholly</p> <p>8 contains Alabama A&M University within Illustrative</p> <p>9 District 7?</p> <p>10 A. I don't agree or disagree.</p> <p>11 Q. Do you disagree that Alabama A&M</p> <p>12 University is a notable community-of-interest area?</p> <p>13 A. Hum. I don't agree or disagree.</p> <p>14 Q. Do you disagree with Mr. Fairfax's</p> <p>15 opinion that enacted District 8 is a more rural</p> <p>16 district and has less communities in -- in common</p> <p>17 with Alabama A&M than the more urban areas of</p> <p>18 illustrative District 7?</p> <p>19 A. I don't agree or disagree.</p> <p>20 Q. Do you disagree that Huntsville and</p> <p>21 Decatur are part of the same combined statistical</p> <p>22 area?</p> <p>23 A. I don't agree or disagree.</p> <p>24 Q. Do you disagree that Illustrative</p>



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<p style="text-align: right;">Page 189</p> <p>1 Plan 1 contains reasonably configured majority 2 black districts? 3 A. I disagree. 4 Q. And for what reasons? 5 A. So the reasons listed on pages 22 to 6 25 of my report. 7 Q. Do you have any other opinions that 8 are not on those pages regarding the reasonable 9 configuration of majority black districts in 10 Illustrative Plan 1? 11 A. Ah, I don't believe so. 12 Q. Do you disagree that Mr. Fairfax's 13 Illustrative Plan 1 fared equal to or better than 14 the enacted plan using the state's redistricting 15 criteria? 16 A. I don't agree or disagree. 17 Q. All right. Let's move to Plans 2 18 and 2A. And this will be in the amended rebuttal 19 report, so that's -- 20 A. Oh, so 2 and 2A. 2 and 3. All 21 right. 22 Q. So we're going to Exhibit 4 now. 23 A. Okay. 24 Q. And turn to page 18 to get there.</p>	<p style="text-align: right;">Page 191</p> <p>1 districts? 2 A. Yeah. That's on page 10 to 13 of 3 the report. It's a compound question. I haven't 4 had a chance to respond to 2A. 5 Q. So you have no opinion about 2A? 6 A. Well, not for the report that came 7 in two days ago, no. 8 Q. Okay. Do you disagree with 9 Mr. Fairfax's opinion that the two illustrative 10 districts in Plan 2, District 7 and 25, are more 11 compact than the analogous districts than the 12 enacted plan? 13 A. I guess for the specific 14 districts -- 15 Uhm, so you -- when you say "the 16 analogous district," do you mean district -- the 17 District Number 7 even if it's in a very different 18 portion of the map? 19 Q. Correct, the District Number 7. 20 A. Uhm, I think District 7 in Map 2 is 21 less compact, at least Polsby-Popper. I think it's 22 more compact than Reock, R-e-o-c-k. So I guess I 23 disagree with him. 24 Q. And if there's a conflict between</p>
<p style="text-align: right;">Page 190</p> <p>1 Okay. Do you disagree with 2 Mr. Fairfax's opinion that his Illustrative Plans 2 3 and 2A are contiguous? 4 A. Ah, I don't disagree. 5 Q. Do you disagree with Mr. Fairfax's 6 opinion that his Illustrative Plans 2 and 2A have 7 reasonably geographically compact districts? 8 A. Ah, no. 9 Q. Do you disagree with his opinion -- 10 A. I'm sorry. You -- The question was 11 in a negative, so I guess the answer is yes, I -- I 12 disagree with him. 13 Q. Okay. And what are the bases for 14 your disagreement? 15 A. Listed on page -- 16 Well, obviously not with 2A since I 17 didn't see it before yesterday and haven't had a 18 chance to respond. 19 Uhm, but pages -- 20 What was the exact question again? 21 Can you read it back? 22 Q. Yes. Do you disagree with 23 Mr. Fairfax's opinion that his Illustrative Plans 2 24 and 2A have reasonably geographically compact</p>	<p style="text-align: right;">Page 192</p> <p>1 two different scores, do you -- how do you 2 distinguish which score to prioritize? 3 A. They tell you different things about 4 the nature of the district, uhm, so it's not like 5 there is a hard-fast rule. But I'm certainly not 6 going to agree with him when there's one 7 different -- compacted metrics are telling you 8 different things, that District 7 is more compact. 9 Q. Do you disagree that District 25 is 10 more compact for Reock, Polsby-Popper, and Convex 11 Hulls in the second plan than the analogous enacted 12 district? 13 A. I don't -- Unless I'm wrong, I don't 14 think District 25 changed from Map 1 to 2. 15 Uhm, maybe to save us some time -- 16 I didn't look at all at District 25 17 in Map 2 and 3. 18 Q. Do you disagree with Mr. Fairfax's 19 opinion that his illustrative plans have eight 20 districts that are more compact than their enacted 21 plan counterparts, while the enacted plan has six 22 districts that are more compact than the analogous 23 districts in the illustrative plan? 24 A. Can you repeat that?</p>



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<p style="text-align: right;">Page 193</p> <p>1 Q. Do you disagree with Mr. Fairfax's 2 opinion that Illustrative Plan 2 has eight 3 districts that are more compact than their enacted 4 plan counterparts, while the enacted plan has six 5 districts that are more compact than the analogous 6 districts in Illustrative Plan 2? 7 A. Ah, I hadn't counted, so I don't 8 know one way or the other. 9 Q. Do you disagree with Mr. Fairfax's 10 opinion that Plan 2A sufficiently preserves cities, 11 towns, and census-designated places? 12 A. I don't agree or disagree. 13 Q. Do you disagree with his opinion 14 that Illustrative Plan 2 split 103 cities, towns, 15 and census-designated places, whereas the enacted 16 plan split 100? 17 A. I don't agree or disagree. 18 Q. Do you disagree that Illustrative 19 Plan 2 respects landmark areas? 20 A. I don't agree or disagree. I might 21 after we do 3. 22 Q. Do you disagree with his opinion 23 that Plan 2 splits 94 landmark areas, whereas the 24 enacted plan splits 99?</p>	<p style="text-align: right;">Page 195</p> <p>1 Q. Okay. I'll just move on. 2 Do you disagree with Mr. Fairfax's 3 opinion that -- 4 Well, I'll do it. Fine. 5 Do you disagree with Mr. Fairfax's 6 opinion that Illustrative Plan 2 maintains 7 identically 20 of the enacted plan's 35 districts? 8 A. If that number appears in my report, 9 then I agree with it. Otherwise, I don't agree or 10 disagree. 11 Q. Okay. And it would be the same for 12 the other metrics related to maintaining the cores, 13 correct, for Illustrative Plan 2? 14 A. Yes. 15 Q. Do you disagree with Mr. Fairfax's 16 opinion that Illustrative Plan 2 performs 17 satisfactorily when minimizing incumbent pairings? 18 A. I don't agree or disagree. 19 Q. Do you disagree with his opinion 20 that Illustrative Plan 2 only pairs two incumbents 21 in one district? 22 A. I don't agree or disagree. 23 Q. Do you disagree that Illustrative 24 Plan 2 has a population deviation of 9.78 percent</p>
<p style="text-align: right;">Page 194</p> <p>1 A. I don't agree or disagree. 2 Q. Do you disagree with his opinion 3 that Illustrative Plan 2 minimizes VTD splits? 4 A. I don't agree or disagree. 5 Q. Do you disagree with the opinion 6 that Illustrative Plan 2 minimizes county splits? 7 A. I don't agree or disagree. 8 Q. Do you disagree with his opinion 9 that Illustrative Plan 2 and the enacted plan both 10 split 19 counties? 11 A. I don't agree or disagree. 12 Q. Do you disagree with Mr. Fairfax -- 13 A. Actually, I do think I agree with 14 that one. 15 Q. Do you disagree with Mr. Fairfax's 16 opinion that Illustrative Plan 2 maintains 17 identically 20 of the enacted plan's 35 districts, 18 maintains between 53.37 percent and 98.66 percent, 19 12 enacted districts, and that only three districts 20 in Illustrative Plan 2 have less than 50 percent of 21 the correlated enacted plan's district? 22 A. I think that was a question -- a 23 three-part question, if you wouldn't mind breaking 24 it out.</p>	<p style="text-align: right;">Page 196</p> <p>1 and which is lower than the enacted plan's 9.97 2 percent deviation? 3 A. I don't agree or disagree. 4 Q. Do you disagree that Plan 2, 5 District 7 follows the natural boundary of the 6 Tennessee River from the Redstone Arsenal to the 7 city of Decatur? 8 A. Ah, I agree with that. 9 Q. Do you disagree that Alabama A&M is 10 a notable community of interest area that is kept 11 whole within Plan 2 Illustrative District 7? 12 A. I don't agree or disagree. 13 Q. Do you disagree that Illustrative 14 Plan 2 fares equal to or better than the enacted 15 plan using the state's redistricting criteria? 16 A. I don't agree or disagree. 17 Q. Okay. Let's talk about Plan 3. And 18 starts on page 29 of this exhibit. 19 Do you disagree with Mr. Fairfax's 20 opinion that his Illustrative Plan 3 is contiguous? 21 A. I don't -- I agree with that. 22 Q. Do you disagree with his opinion 23 that Illustrative Plan 3 -- that in Illustrative 24 Plan 3, seven districts are more compact than their</p>



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<p style="text-align: right;">Page 197</p> <p>1 enacted plan counterparts, whereas the enacted plan</p> <p>2 has seven districts that are more compact than the</p> <p>3 analogous districts in the illustrative plan?</p> <p>4 A. I haven't done the count, so I don't</p> <p>5 agree or disagree.</p> <p>6 Q. Do you disagree with his opinion</p> <p>7 that comparing the means of the plan's district</p> <p>8 compactness measurements illustrative in active</p> <p>9 plans are similarly compact?</p> <p>10 A. I think I'm saying that this -- I</p> <p>11 think the -- his illustrative map is less compact</p> <p>12 than the enacted map.</p> <p>13 Q. Do you disagree with his opinion</p> <p>14 that the mean Reock score is .39 for Illustrative</p> <p>15 Plan 3 and that it's .41 for the enacted plan?</p> <p>16 A. I have .395 for the enacted map and</p> <p>17 .377 for his map.</p> <p>18 Q. Do you disagree that the mean</p> <p>19 Polsby-Popper score for Illustrative Plan 3 is .25</p> <p>20 and that it's .26 for the enacted plan?</p> <p>21 A. Ah, I -- Yeah, I agree.</p> <p>22 Q. Do you disagree that the mean</p> <p>23 Convex Hull score is .73 for Illustrative Plan 3</p> <p>24 and .74 for the enacted plan?</p>	<p style="text-align: right;">Page 199</p> <p>1 A. I don't know how Map 2 is defining</p> <p>2 landmark areas, so I don't know one way or the</p> <p>3 other.</p> <p>4 Q. What about your opinion?</p> <p>5 A. Landmark areas isn't is a</p> <p>6 traditional redistricting criteria, so -- as far as</p> <p>7 I know, so I've never really looked at that.</p> <p>8 Q. So you have no opinion of what a</p> <p>9 landmark area is?</p> <p>10 A. Huh?</p> <p>11 Q. You have no opinion of what a</p> <p>12 landmark area is?</p> <p>13 A. I -- I don't. I guess you could --</p> <p>14 I mean, I --</p> <p>15 At the extremes, I certainly would</p> <p>16 know. Like, certainly the Washington Monument</p> <p>17 would be a landmark area; but how you define it,</p> <p>18 what you include in it, no, I don't have an</p> <p>19 opinion.</p> <p>20 Q. Do you disagree with his opinion</p> <p>21 that Illustrative Plan 3 splits 98 landmark areas</p> <p>22 and the enacted plan splits 99?</p> <p>23 A. I don't have an opinion one way or</p> <p>24 the other.</p>
<p style="text-align: right;">Page 198</p> <p>1 A. I don't agree or disagree.</p> <p>2 Q. Do you disagree that a Convex Hull</p> <p>3 score of .73 is similarly compact to a Convex Hull</p> <p>4 score of .74?</p> <p>5 A. I don't know whether the line is</p> <p>6 between similar and dissimilar. I do know it's</p> <p>7 lower or less compact.</p> <p>8 Q. Do you disagree that Illustrative</p> <p>9 Plan 3 sufficiently preserves cities, towns, and</p> <p>10 census-designated places?</p> <p>11 A. I don't have an opinion one way or</p> <p>12 the other.</p> <p>13 Q. Do you disagree with his opinion</p> <p>14 that Illustrative Plan 3 splits 105 cities, towns,</p> <p>15 and census-designated places, whereas the enacted</p> <p>16 plan splits 100?</p> <p>17 A. I don't agree or disagree.</p> <p>18 Q. Do you disagree that Mr. Fairfax's</p> <p>19 Illustrative Plan 3 respects landmark areas?</p> <p>20 A. Don't agree or disagree.</p> <p>21 Q. Do you disagree with Mr. Fairfax's</p> <p>22 opinion that landmark areas include communities of</p> <p>23 interest such as colleges and universities,</p> <p>24 military bases, and airports?</p>	<p style="text-align: right;">Page 200</p> <p>1 Q. Do you disagree with Mr. Fairfax's</p> <p>2 opinion that Illustrative Plan 3 minimizes voter</p> <p>3 tabulation district splits?</p> <p>4 A. I don't agree or disagree.</p> <p>5 Q. Do you disagree with Mr. Fairfax's</p> <p>6 opinion that his Illustrative Plan 3 minimizes</p> <p>7 county line splits?</p> <p>8 A. It doesn't.</p> <p>9 Q. So you disagree?</p> <p>10 A. I mean, it has more county splits</p> <p>11 than the enacted map, so I don't see how it could</p> <p>12 minimize them.</p> <p>13 Q. Okay.</p> <p>14 A. And I know -- I mean, he's offered</p> <p>15 illustrative maps that don't have a four-county</p> <p>16 split in 7, so I don't see how he could be</p> <p>17 minimizing county splits.</p> <p>18 Q. What is the four-county split he has</p> <p>19 in 7?</p> <p>20 A. District 7 splits Madison, Morgan,</p> <p>21 Limestone, and, ah, Lawrence Counties.</p> <p>22 Q. Do you disagree with Mr. Fairfax's</p> <p>23 opinion about how he maintains enacted plan's</p> <p>24 districts in Illustrative Plan 3?</p>



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<p style="text-align: right;">Page 201</p> <p>1 A. I don't agree or disagree.</p> <p>2 Q. Do you disagree with his opinion</p> <p>3 that Illustrative Plan 3 performs satisfactorily</p> <p>4 when minimizing incumbent pairings?</p> <p>5 A. I don't agree or disagree.</p> <p>6 Q. Do you disagree with his opinion</p> <p>7 that Illustrative Plan 3 only pairs two incumbents</p> <p>8 in one district?</p> <p>9 A. I don't agree or disagree.</p> <p>10 Q. Do you disagree with his opinion</p> <p>11 that Illustrative Plan 3 is a population deviation</p> <p>12 of 9.66 percent lower than the enacted plan's</p> <p>13 population deviation of 9.97 percent?</p> <p>14 A. I don't agree or disagree.</p> <p>15 Q. Do you disagree that Illustrative</p> <p>16 Plan 3, District 7, follows the natural boundary at</p> <p>17 the Tennessee River from the Redstone Arsenal to</p> <p>18 the city of Decatur?</p> <p>19 A. I agree.</p> <p>20 Q. Do you disagree that Alabama A&M</p> <p>21 University is a notable community-of-interest area</p> <p>22 kept whole within Illustrative District 7 of</p> <p>23 Plan 3?</p> <p>24 A. I don't agree or disagree.</p>	<p style="text-align: right;">Page 203</p> <p>1 above 50 percent goes to the configuration of the</p> <p>2 district.</p> <p>3 Q. So your opinion is that Illustrative</p> <p>4 Plan 1, District 7, is not reasonably configured?</p> <p>5 A. I think that my opinion is that the</p> <p>6 groups within it, the minority groups aren't a</p> <p>7 single compact group; that there are multiple</p> <p>8 distinct groupings, and that that can be used to go</p> <p>9 to the reasonable configuration of the district,</p> <p>10 which I take to be a legal matter.</p> <p>11 Q. So you believe that on the basis of</p> <p>12 one criterion, it's possible to form an opinion</p> <p>13 about whether the district is reasonably</p> <p>14 configured?</p> <p>15 A. Yeah, of course.</p> <p>16 Q. Didn't we discuss earlier how there</p> <p>17 were trade-offs and there could be, you know,</p> <p>18 fact -- considering one factor could lead you to</p> <p>19 discount another factor?</p> <p>20 A. Sure.</p> <p>21 Q. So if you then analyze many</p> <p>22 different factors, how do you know that those</p> <p>23 factors didn't cause a lack of population</p> <p>24 compactness?</p>
<p style="text-align: right;">Page 202</p> <p>1 Q. Do you disagree that a sizeable</p> <p>2 portion of Illustrative District 7 community</p> <p>3 indicator on the Morgan County side in the towns of</p> <p>4 Cortland and North Cortland have similar</p> <p>5 socioeconomic makeup as another sizeable area</p> <p>6 within Illustrative District 7 in the City of</p> <p>7 Huntsville?</p> <p>8 A. I -- I don't know, but it can't be</p> <p>9 that important to keep them together since two</p> <p>10 of -- two of his illustrative districts don't do</p> <p>11 so.</p> <p>12 Q. Do you disagree that Mr. Fairfax's</p> <p>13 Illustrative Plan 3 fares equal to or better than</p> <p>14 the enacted plan using the state's redistricting</p> <p>15 criteria?</p> <p>16 A. I don't agree one way or the other,</p> <p>17 or disagree.</p> <p>18 Q. Do you intend to offer an opinion</p> <p>19 about whether Illustrative Plan 1's District 7 is</p> <p>20 reasonably configured?</p> <p>21 A. Uhm, I think the opinion that</p> <p>22 population isn't compact, that it's a number of</p> <p>23 distinct clusters separated by empty spaces that</p> <p>24 are only traversed to keep the BVAP from going</p>	<p style="text-align: right;">Page 204</p> <p>1 A. I think a district --</p> <p>2 I think it's pretty clear from the</p> <p>3 Supreme Court's juris prudence that you can have</p> <p>4 districts that are so grotesque that have, you</p> <p>5 know, arms and appendages or whatever, that the</p> <p>6 opinions almost exclusively focus on compactness,</p> <p>7 that that's sufficient.</p> <p>8 You also have --</p> <p>9 Although I still haven't exactly</p> <p>10 figured out what Allen v. Milligan means, I thought</p> <p>11 I knew what it would look like for the state to</p> <p>12 both win or lose, and I was wrong.</p> <p>13 But if you look at</p> <p>14 Justice Kavanaugh's concurrence, there's language</p> <p>15 in there about the -- one of the preconditions for</p> <p>16 Gingles being the minority group. I don't remember</p> <p>17 the exact verbiage, but the minority group itself</p> <p>18 being compact and not spread out. So he's the</p> <p>19 fifth vote there most likely, that almost certainly</p> <p>20 goes directly to the question of reasonable</p> <p>21 configuration.</p> <p>22 I mean, you're asking my opinion on</p> <p>23 how I think the lawyers will use it. So they may</p> <p>24 use things in different ways. That's my personal</p>



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<p style="text-align: right;">Page 205</p> <p>1 opinion on how I think it's relevant and how you</p> <p>2 can decide things on a single factor. But I'm sure</p> <p>3 you will argue it.</p> <p>4 Mr. Seiss: Jack, when you get to a</p> <p>5 stopping point, could we take a break?</p> <p>6 MR. GENBERG: Sure. We can take a</p> <p>7 break now.</p> <p>8 (Brief recess.)</p> <p>9 BY MR. GENBERG:</p> <p>10 Q. During the break, did you talk about</p> <p>11 the substance of this deposition with counsel?</p> <p>12 A. Ah, yeah.</p> <p>13 Q. And what did you discuss?</p> <p>14 A. Ah, we talked about landmarks and</p> <p>15 how it didn't really make sense to me that, you</p> <p>16 know, the -- the Himojima Memorial is a landmark</p> <p>17 and the Pentagon can be a landmark. But why you</p> <p>18 would care that they're in the same district,</p> <p>19 except maybe inasmuch as they're I think both in</p> <p>20 Arlington, uhm, I don't know. I think it would</p> <p>21 just depend on a case-by-case basis whether</p> <p>22 landmarks being together really mattered or not.</p> <p>23 Q. Let's talk about communities of</p> <p>24 interest.</p>	<p style="text-align: right;">Page 207</p> <p>1 reports?</p> <p>2 A. Yes.</p> <p>3 Q. Are you aware of how the Senate plan</p> <p>4 attempted to observe communities of interest?</p> <p>5 A. No.</p> <p>6 Q. Do you believe that all of Alabama's</p> <p>7 Senate districts are reasonably compact?</p> <p>8 A. I don't have an opinion one way or</p> <p>9 the other.</p> <p>10 Q. Did Alabama's redistricting</p> <p>11 guidelines affect the analysis in your reports?</p> <p>12 A. No.</p> <p>13 Q. I'll represent that Alabama's</p> <p>14 redistricting guidelines define a community of</p> <p>15 interest as, quote, an area with recognized</p> <p>16 similarities of interests, including but not</p> <p>17 limited to, ethnic, racial, economic, tribal,</p> <p>18 social, geographic, or historical identities.</p> <p>19 Do you agree with this definition?</p> <p>20 A. Ah, it's not the definition I'd use;</p> <p>21 uhm, but if that's the definition that's in there,</p> <p>22 it is.</p> <p>23 I also am unclear as to how much a</p> <p>24 racial identity can constitutionally be a community</p>
<p style="text-align: right;">Page 206</p> <p>1 Can shared racial identities be a</p> <p>2 factor in the composition of a community of</p> <p>3 interest?</p> <p>4 A. I don't know. That's a really good</p> <p>5 question.</p> <p>6 Q. Can shared economic identities be a</p> <p>7 factor in the composition of a community of</p> <p>8 interest?</p> <p>9 A. Yes.</p> <p>10 Q. Can shared social identities be a</p> <p>11 factor in the composition of a community of</p> <p>12 interest?</p> <p>13 A. It can be.</p> <p>14 Q. Can shared historical identities be</p> <p>15 a factor in the composition of a community of</p> <p>16 interest.</p> <p>17 A. It -- it certainly can be.</p> <p>18 Q. Do you know whether Alabama's</p> <p>19 Reapportionment Committee passed guidelines that</p> <p>20 guides redistricting of the Alabama Senate map?</p> <p>21 A. Uhm, I think so, but I -- I</p> <p>22 shouldn't say yes or no. I don't know.</p> <p>23 Q. Did you review Alabama's</p> <p>24 redistricting guidelines prior to finalizing your</p>	<p style="text-align: right;">Page 208</p> <p>1 of interest when we're in the litigation land.</p> <p>2 Q. Do you believe that similar</p> <p>3 household income in an area is a datapoint in favor</p> <p>4 of finding that area as a community of interest?</p> <p>5 A. Oh, it certainly can be.</p> <p>6 Q. Do you believe that similar housing</p> <p>7 values in an area is a datapoint in favor of</p> <p>8 finding that area as a community of interest?</p> <p>9 A. It can be.</p> <p>10 Q. Are you aware of any communities of</p> <p>11 interest in the Montgomery area?</p> <p>12 A. No.</p> <p>13 Q. Are you aware of any communities of</p> <p>14 interest in the Greater Huntsville area?</p> <p>15 A. No. I haven't looked into that.</p> <p>16 Q. I take it you're not aware of any</p> <p>17 communities of interest that Mr. Fairfax's</p> <p>18 illustrative plans have failed to preserve?</p> <p>19 A. No. There's other experts in this</p> <p>20 case that might have looked into that, but I</p> <p>21 didn't.</p> <p>22 Q. Are you aware of how the enacted</p> <p>23 Senate plan attempted to observe communities of</p> <p>24 interest?</p>



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<p style="text-align: right;">Page 209</p> <p>1 A. No.</p> <p>2 Q. Are you aware the Senate map drawer,</p> <p>3 Mr. Hinman, testified that the community in the</p> <p>4 center of Huntsville is a community of interest?</p> <p>5 A. No.</p> <p>6 Q. Would it affect your opinion to have</p> <p>7 learned that?</p> <p>8 A. No.</p> <p>9 Q. Are you aware of that the black</p> <p>10 community in particular in the center of Huntsville</p> <p>11 was determined by Mr. Hinman to be a community of</p> <p>12 interest?</p> <p>13 A. No.</p> <p>14 Q. Would that affect your opinion to</p> <p>15 have learned that?</p> <p>16 A. No.</p> <p>17 Q. Are you aware that in Alabama's own</p> <p>18 districting criteria, avoiding the paring of</p> <p>19 incumbents and preserving district cores are lower</p> <p>20 tier priorities compared to VRA compliance,</p> <p>21 compactness, and contiguity?</p> <p>22 A. No.</p> <p>23 Q. Would it affect your opinion to have</p> <p>24 learned that?</p>	<p style="text-align: right;">Page 211</p> <p>1 And I'm sorry to cut you off. I</p> <p>2 just didn't want to move on if I had to correct an</p> <p>3 answer.</p> <p>4 I guess not. No, I didn't look at</p> <p>5 it directly. That's right.</p> <p>6 Q. Okay. So you didn't look at the</p> <p>7 compactness of Illustrative District 25?</p> <p>8 A. Correct.</p> <p>9 Q. And you didn't look at the</p> <p>10 compactness of Illustrative District 7 in Plan 1?</p> <p>11 A. Correct.</p> <p>12 Q. Let's talk about your population</p> <p>13 compactness analysis in your first report.</p> <p>14 What is the purpose of this</p> <p>15 population compactness analysis?</p> <p>16 A. To determine whether the population</p> <p>17 is -- the black population in the district is</p> <p>18 compact.</p> <p>19 Q. Is population compactness a</p> <p>20 traditional redistricting criteria?</p> <p>21 A. No. But it's something that's</p> <p>22 mentioned in the Gingles factors, and that is</p> <p>23 mentioned in Justice Kavanaugh's concurrence in</p> <p>24 Allen v. Milligan.</p>
<p style="text-align: right;">Page 210</p> <p>1 A. Yes.</p> <p>2 Q. How would it affect your opinion?</p> <p>3 A. I would be more confident, because</p> <p>4 there's some things I didn't look at that are</p> <p>5 apparently prioritized beneath the things I did</p> <p>6 look at.</p> <p>7 Q. Did you look at contiguity?</p> <p>8 A. I think I agreed on the last one</p> <p>9 that it's contiguous. But contiguity is kind of a</p> <p>10 no-brainer. If you're going to give points for</p> <p>11 drawing a contiguous district, uhm, you're going to</p> <p>12 make it really hard to come up with an unreasonably</p> <p>13 drawn district 'cause everyone can pull that.</p> <p>14 I shouldn't say that. People mess</p> <p>15 it up, but.</p> <p>16 Q. Did you look at the compactness of</p> <p>17 the Illustrative District 25 in the Montgomery</p> <p>18 area?</p> <p>19 A. No.</p> <p>20 Q. Did you look at the compactness of</p> <p>21 Illustrative District 7 in Plan 1?</p> <p>22 A. I shouldn't say that. I shouldn't</p> <p>23 say that, because I think --</p> <p>24 Uhm, is that my second --</p>	<p style="text-align: right;">Page 212</p> <p>1 Q. How do you understand population</p> <p>2 compactness to be relevant to a Gingles 1 inquiry?</p> <p>3 A. Gingles 1, uhm, requires that the</p> <p>4 minority population be compact.</p> <p>5 Uhm, I understand that plaintiffs</p> <p>6 take the -- tend to take the position in these</p> <p>7 cases that the compactness is defined by the shape</p> <p>8 of the district; and if the district is reasonably</p> <p>9 compact, then all is well.</p> <p>10 I understand that defendants tend to</p> <p>11 have a different view of that. But that is a legal</p> <p>12 fight that I am more than content to let you all</p> <p>13 battle out.</p> <p>14 Q. On page 22 of your first report, you</p> <p>15 say, Illustrative District 7 connects to, quote,</p> <p>16 discrete black groups in Huntsville and Decatur.</p> <p>17 A. Which report is this?</p> <p>18 Q. The first report.</p> <p>19 A. Page 22?</p> <p>20 Q. Near the bottom of the page.</p> <p>21 A. Oh. Yes.</p> <p>22 Q. What do you mean by the term, quote,</p> <p>23 "discrete groups"?</p> <p>24 A. Well, you can look at the dot</p>



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<p style="text-align: right;">Page 213</p> <p>1 density maps on page 24 and 25 and plainly see that</p> <p>2 these are groups that are separated by empty areas</p> <p>3 or by, if you look at the choropleth map, heavily</p> <p>4 white areas.</p> <p>5 Q. Did you assess whether the black</p> <p>6 population in Huntsville and Decatur may share a</p> <p>7 community of interest?</p> <p>8 A. No.</p> <p>9 Q. Does your determination that the</p> <p>10 black population in Huntsville and Decatur are,</p> <p>11 quote, discrete groups, closed quote, include an</p> <p>12 assessment of whether the black population in</p> <p>13 Huntsville and Decatur have similar areas of</p> <p>14 interest, whether those be shared ethnic, economic,</p> <p>15 tribal, social, geographic, or historical</p> <p>16 identities?</p> <p>17 A. They may form a community of</p> <p>18 interest, but they are geographically discrete</p> <p>19 groups.</p> <p>20 Q. Does your determination that the</p> <p>21 black population in Huntsville and Decatur are</p> <p>22 discrete groups include a mathematical computation</p> <p>23 of the distance between these, to use your words,</p> <p>24 discrete groups?</p>	<p style="text-align: right;">Page 215</p> <p>1 composition of the precincts within the district to</p> <p>2 be irrelevant to the Gingles 1 inquiry?</p> <p>3 A. Yes.</p> <p>4 Q. How?</p> <p>5 A. Because it can demonstrate whether</p> <p>6 or not the group -- the groups are geographically</p> <p>7 distinct from one another. It can also illustrate</p> <p>8 whether precincts are being specifically carved out</p> <p>9 on the basis of race.</p> <p>10 Q. Turning to page 24 and the Figure 10</p> <p>11 dot density map, is that visualization with the</p> <p>12 blue dots for black population layered over white</p> <p>13 X's for white population?</p> <p>14 A. Yes -- Or no. Orange X's.</p> <p>15 Q. Sorry. Orange X's, yes.</p> <p>16 And do you believe that that</p> <p>17 visualization obscures the appearance of white</p> <p>18 population to make it appear smaller than it is?</p> <p>19 A. Ah, no, because that's not really</p> <p>20 what this is used for.</p> <p>21 But if you're concerned about that</p> <p>22 being misleading, you would look at the choropleth</p> <p>23 map, which can confirm for you what the overall</p> <p>24 percentage of an area is in terms of BVAP. You</p>
<p style="text-align: right;">Page 214</p> <p>1 A. It's not.</p> <p>2 Q. Is your determination that the black</p> <p>3 population in Huntsville and Decatur are discrete</p> <p>4 groups based on anything other than your eyeball</p> <p>5 assessment of their location on the map?</p> <p>6 A. No. Since the courts have been</p> <p>7 satisfied with visual inspections of districts for</p> <p>8 purposes of determining compact- -- the reasonable</p> <p>9 compactness or reasonability of the district shape,</p> <p>10 I would imagine the same test could apply to</p> <p>11 population compactness, as well, especially since,</p> <p>12 to my knowledge, no state has a population</p> <p>13 compactness demand on its, ah -- its own districts.</p> <p>14 So you don't even have a benchmark to compare to</p> <p>15 mathematically as you would with district</p> <p>16 compactness.</p> <p>17 And even within the terms of the</p> <p>18 VAR, the compactness of the white population is an</p> <p>19 irrelevant factor. It's only the population of the</p> <p>20 minority group that figures into the test.</p> <p>21 Q. Turning to page 23, in the</p> <p>22 choropleth map, other than establishing the black</p> <p>23 population as a majority in the illustrative</p> <p>24 district, do you understand that the racial</p>	<p style="text-align: right;">Page 216</p> <p>1 don't look at these discretely.</p> <p>2 Q. Do the blue dots and orange X's</p> <p>3 represent exactly ten CVAP each?</p> <p>4 A. No.</p> <p>5 Q. And why not?</p> <p>6 A. Because in certain areas, there may</p> <p>7 be, say, 22, ah, black residents or there may be</p> <p>8 18; ah, and so in those instances, you round.</p> <p>9 Q. Okay. And then --</p> <p>10 A. But to clar- -- to be clear, if it's</p> <p>11 18, there would be one dot representing 10</p> <p>12 individuals, and then the second dot would be the</p> <p>13 one that's rounded up. It's not that every dot</p> <p>14 represents a rounding.</p> <p>15 Q. Okay. And then back to the page 23,</p> <p>16 you write that, at the bottom of the page, The</p> <p>17 district picks up a substantial, compact Black</p> <p>18 population in Huntsville. It then bypasses the</p> <p>19 populated (heavily White) portions of Madison to</p> <p>20 cut across the unpopulated Redstone Arsenal, before</p> <p>21 picking up another cluster of Black residents to</p> <p>22 the west of the Arsenal.</p> <p>23 What is the relevance of Plan 1's</p> <p>24 Illustrative District 7 bypassing populated heavily</p>



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<p style="text-align: right;">Page 217</p> <p>1 white areas and including unpopulated areas?</p> <p>2 A. I think relevance is directly</p> <p>3 something for the lawyers to, ah, discuss.</p> <p>4 It just illustrates that Dr. -- or</p> <p>5 Mr. Fairfax is using these unpopulated areas to</p> <p>6 stitch together, ah, these minority groups that he</p> <p>7 wouldn't otherwise be able to place in a district</p> <p>8 together, because he would be picking up huge</p> <p>9 populations by cutting huge numbers of residents by</p> <p>10 cutting through Madison.</p> <p>11 Q. Do you understand the density of the</p> <p>12 population within an -- an illustrative district</p> <p>13 regardless of race to be relevant to the Gingles 1</p> <p>14 inquiry?</p> <p>15 A. No. This goes to how the district</p> <p>16 is constructed.</p> <p>17 Q. Okay. Well, your narrative says it</p> <p>18 cuts across the populated Redstone Arsenal; and so</p> <p>19 I'm wondering, that inclusion of an unpopulated</p> <p>20 area, if that -- how is that relevant to the</p> <p>21 Gingles 1 determination?</p> <p>22 A. Well, again, I certainly don't bind</p> <p>23 the lawyers in how they will, ah, argue this; but</p> <p>24 in my opinion, I would say it, again, goes directly</p>	<p style="text-align: right;">Page 219</p> <p>1 don't have a readily available reference to use for</p> <p>2 mathematical computations like you do for the Reock</p> <p>3 or Polsby-Popper score.</p> <p>4 Q. How do you assess these clusters are</p> <p>5 compact, to use your word?</p> <p>6 A. What do you mean?</p> <p>7 Q. Well, you said that these are a</p> <p>8 collection of three compact clusters.</p> <p>9 A. Yes.</p> <p>10 Q. So how does each cluster compact, in</p> <p>11 your opinion?</p> <p>12 A. Because I don't think any reasonable</p> <p>13 person would dis- -- dis- -- disagree that those</p> <p>14 three clusters in Decatur, Huntsville to the west</p> <p>15 of the Redstone Arsenal are, in fact, compact</p> <p>16 population groups.</p> <p>17 Q. I thought you said that they are</p> <p>18 compact, that --</p> <p>19 A. Yeah. No one reasonably would</p> <p>20 dispute that.</p> <p>21 Q. Oh, okay. I see.</p> <p>22 Based on an eyeball assessment.</p> <p>23 A. The same type of analysis the Court</p> <p>24 uses for district boundaries.</p>
<p style="text-align: right;">Page 218</p> <p>1 to the degree of racial motivation in drawing the</p> <p>2 district and the way that these unpopulated areas</p> <p>3 are being used to stitch together geographically</p> <p>4 distinct areas of the district.</p> <p>5 Q. These unpopulated or lower</p> <p>6 population areas must be in one of the districts.</p> <p>7 Right?</p> <p>8 A. Yes.</p> <p>9 Q. Okay. So at the top of 24, you say,</p> <p>10 The district is a collection of three compact</p> <p>11 clusters of black residents separated by a corridor</p> <p>12 containing empty or mostly white areas of the</p> <p>13 counties.</p> <p>14 What do you mean by the term</p> <p>15 "clusters"?</p> <p>16 A. Groupings.</p> <p>17 Q. Is your assessment that these are</p> <p>18 clusters based on anything other than your eyeball</p> <p>19 assessment of their location on the map?</p> <p>20 A. I mean, it's -- it's pretty obvious.</p> <p>21 And as I've said, because the Court has endorsed an</p> <p>22 eyeball test when looking for things like arms and</p> <p>23 appendages in a district, I would assume it would</p> <p>24 be acceptable here, as well, especially when you</p>	<p style="text-align: right;">Page 220</p> <p>1 Q. Let's look at your supplemental</p> <p>2 report.</p> <p>3 Is it your opinion that Illustrative</p> <p>4 District 7 in all three Fairfax plans do not</p> <p>5 contain a compact black population?</p> <p>6 A. Yes.</p> <p>7 Q. Is it your opinion that the black</p> <p>8 population is less compact in one of the plans than</p> <p>9 in the others?</p> <p>10 A. Ah, I don't think I ever made that</p> <p>11 comparison.</p> <p>12 Q. Do you have an opinion on the</p> <p>13 relative compactness of the black population in the</p> <p>14 three plans in District 7?</p> <p>15 A. I don't remember ever doing that</p> <p>16 rank ordering; but since the districts themselves</p> <p>17 become less compact to reach different groups, I</p> <p>18 guess two is less compact than one and three is</p> <p>19 less than two, if you insist on me making that</p> <p>20 assessment.</p> <p>21 Q. And you make that assessment based</p> <p>22 on the compactness of the district boundaries?</p> <p>23 A. No. The district boundaries stretch</p> <p>24 in order to pick up further dis- -- ah, further</p>



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<p style="text-align: right;">Page 221</p> <p>1 dispersed black population. So I think by 2 definition, those populations would be less 3 compact. 4 Q. Have you ever measured the 5 compactness of the black population within a 6 district mathematically? 7 A. Uhm, yeah, I think that's a yes and 8 no. 9 Q. Can you explain? 10 A. So in order to use -- to -- 11 So if you have, like, a 63 percent 12 BVAP district, Gingles requires a compact minority 13 population sufficient to be 50 percent plus one of 14 the population in a district. So if you have a 15 district with 63 percent BVAP, there's going to be 16 an infinite number of clusters that could pass that 17 50-percent-plus-one threshold. I shouldn't say 18 "infinite." Functionally infinite number of 19 clusters. 20 And so I've used the 21 moment-of-inertia test to determine within a 22 district what's the most compact population that 23 crosses that threshold. 24 Q. Have you used any other tests to</p>	<p style="text-align: right;">Page 223</p> <p>1 compact grouping that gets to 50 percent plus one 2 that you should use. 3 Q. I'm a little confused by what you're 4 saying. 5 Why is the -- your argument about 6 numerosity tied to your argument about population 7 compactness? 8 A. Yeah, you're not the only one 9 confused about that. 10 Uhm, the whole point of the way I 11 use the moment of inertia -- It's actually to 12 plaintiffs' benefit. 13 Instead of looking at the entire 14 district where you might have non-compact black 15 populations, just as a function of one-person/ 16 one-vote, uhm, it focuses in on the most compact 17 grouping that gets you to 50 percent plus one, 18 because that's the relevant grouping for purposes 19 of Gingles. You want to know whether there exists 20 a compact group that can be 50 percent plus one in 21 a district. Uhm, so that's how I used it in that 22 case, was just to identify the most compact 23 population. 24 Q. Okay. And you rendered an opinion</p>
<p style="text-align: right;">Page 222</p> <p>1 determine the mathematical compactness of a 2 population? 3 A. Ah, yeah. So if you go back to 4 when, ah, the Senate factors were amended, there's 5 an emphasis -- there's a dictionary definition that 6 emphasizes -- a dictionary definition of 7 compactness that emphasizes the area covered. So I 8 took a con- -- a conception of -- a 9 conceptualization of compactness used by Chen, 10 C-h-e-n, and Rodden, R-o-d-d-e-n, for one of their 11 famous redistricting algorithms and applied it to 12 minority populations. 13 Q. Do you intend to offer an opinion 14 regarding the moment-of-inertia method or the Chen 15 and Rodden approach in this case? 16 A. No. 17 Q. Why not? 18 A. Ah, because these districts aren't 19 even 50 percent plus one -- Well, Districts 1 20 and 2 aren't even 50 percent plus one BVAP, and 21 District 3 barely exceeds that. 22 So you're really looking at the 23 entire district, anyway, unless someone wants to 24 come forth and say, no, actually this is the</p>	<p style="text-align: right;">Page 224</p> <p>1 regarding population compactness and utilized the 2 moment of inertia and Chen and Rodden approach in 3 the Nairn case in Louisiana. Correct? 4 A. Ah, yeah, to identify the most 5 compact population groups in each district. 6 Q. And did the -- the Court in that 7 case find that your opinion was helpful to its 8 determination of answering the Gingles 1 question? 9 A. No. 10 Q. And why not? 11 A. Uhm, that's a good question. Uhm, I 12 don't think the Court really understood what I was 13 doing based on the Court's description, ah, of the 14 utilization of it and why I used it in some places 15 and not in others. 16 Uhm, but regardless, the Court 17 didn't, ah, utilize it, which would seem to be 18 another good reason not to use it in this case, at 19 least until the appeal is resolved. 20 Q. And the Court found, quote, The 21 drawing of VRA compliant map balances multiple 22 criteria and is considerably more complicated and 23 nuanced than suggested by the oversimplistic and 24 unhelpful compactness measure advanced by Trende.</p>



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<p style="text-align: right;">Page 225</p> <p>1 What is your understanding of the</p> <p>2 Court's criticism?</p> <p>3 A. Ah, that the Court thinks that</p> <p>4 the --</p> <p>5 I actually don't understand what</p> <p>6 that means in the -- in terms of Gingles, because</p> <p>7 you have to have a compact population group or</p> <p>8 compact minority population. There's really</p> <p>9 nothing in there about -- except --</p> <p>10 If you read Gingles, there's nothing</p> <p>11 in there about balancing it against other</p> <p>12 considerations. It's the threshold requirement.</p> <p>13 Q. And the Court further found that,</p> <p>14 quote, Existing law does not require a granular</p> <p>15 analysis of the distribution of minority</p> <p>16 populations within an illustrative district to the</p> <p>17 exclusion of other criterion and priorities.</p> <p>18 What is your understanding of the</p> <p>19 Court's criticism there?</p> <p>20 A. Ah, the Court -- Just what it says,</p> <p>21 that the Court doesn't think that compactness is a</p> <p>22 stand-alone requirement.</p> <p>23 Q. And --</p> <p>24 A. That's its legal conclusion.</p>	<p style="text-align: right;">Page 227</p> <p>1 A. The judge wasn't impressed by --</p> <p>2 didn't seem to be impressed by a general demand for</p> <p>3 examination of the population compactness even</p> <p>4 though there was a 5th Circuit opinion saying you</p> <p>5 have to consider population compactness, and the</p> <p>6 shape of the district is only one consideration,</p> <p>7 so.</p> <p>8 But that's a legal matter for the</p> <p>9 lawyers to fight about coming out of a different</p> <p>10 district --</p> <p>11 Q. Looking at --</p> <p>12 A. -- or circuit, I should say.</p> <p>13 Q. -- your supplemental report,</p> <p>14 page 17, you write that, quote, The district, once</p> <p>15 again, includes a cluster of black residents in the</p> <p>16 tail around Huntsville, a cluster indicator, and a</p> <p>17 cluster west of the Redstone Armory, it adds a</p> <p>18 cluster in Athens and then a cluster of rural black</p> <p>19 population west of Decatur.</p> <p>20 A. Yes.</p> <p>21 Q. And I guess you have your dot</p> <p>22 density map on the next page, page 18.</p> <p>23 Using that figure as a reference,</p> <p>24 which black parts -- sorry -- which black residents</p>
<p style="text-align: right;">Page 226</p> <p>1 Q. And has that opinion affected your</p> <p>2 analysis in this case?</p> <p>3 A. No. You don't -- I wouldn't use the</p> <p>4 moment-of-inertia analysis here, anyway, because</p> <p>5 these districts are right at the 50-percent-plus-</p> <p>6 one threshold. So they aren't going to help me</p> <p>7 identify the most compact 50-percent-plus-one</p> <p>8 population grouping in these districts.</p> <p>9 Uhm, I mean, the fact that the judge</p> <p>10 wasn't legally impressed with it or had a different</p> <p>11 legal conclusion about what Gingles 1 required</p> <p>12 might be, I'm sure the lawyers will hear about that</p> <p>13 opinion when you argue about what Gingles 1</p> <p>14 requires, but that doesn't really influence my</p> <p>15 thinking.</p> <p>16 Q. The Court specifically says that the</p> <p>17 distribution of minority populations within an</p> <p>18 illustrative district, that was something she</p> <p>19 didn't find to be required, ah, to the exclusion of</p> <p>20 other criterion and priorities.</p> <p>21 So does it appear to you that that</p> <p>22 can -- opinion is based just on the use of the</p> <p>23 method-of-inertia approach or the population</p> <p>24 compactness analysis as a whole?</p>	<p style="text-align: right;">Page 228</p> <p>1 are part of the cluster of rural black population</p> <p>2 west of Decatur?</p> <p>3 A. The area in Lawrence County.</p> <p>4 Q. Would a rural black population</p> <p>5 cluster be able to be part of a compact black</p> <p>6 population as you have analyzed population</p> <p>7 compactness?</p> <p>8 A. It would depend on the context.</p> <p>9 Q. How would a rural black population</p> <p>10 cluster be compact?</p> <p>11 A. Again, it just depends on the</p> <p>12 overall context. If you have an area where, uhm,</p> <p>13 you know, there's not a lot of white population</p> <p>14 between, you know, maybe there's something like the</p> <p>15 Delta Region in Mississippi where you really do</p> <p>16 have a longstanding geographically defined</p> <p>17 community of interest. Uhm, but I don't know.</p> <p>18 Q. What if you were to take a black</p> <p>19 population in a rural area and a black population</p> <p>20 in a suburban area, could those possibly be compact</p> <p>21 by population?</p> <p>22 A. I don't know.</p> <p>23 Q. On page 26 of your first report.</p> <p>24 A. Oh. The first report?</p>



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<p style="text-align: right;">Page 229</p> <p>1 Q. Yeah, first report.</p> <p>2 You have an analysis of Illustrative</p> <p>3 District 25.</p> <p>4 Are you aware that the portion of</p> <p>5 the district in Crenshaw County merely repli- --</p> <p>6 replicates the state's Senate District 25 as as</p> <p>7 much of Montgomery County?</p> <p>8 A. Yes.</p> <p>9 Q. Did that affect your opinion?</p> <p>10 A. No.</p> <p>11 Q. Is it your opinion that the black</p> <p>12 population in Illustrative District 25 is more</p> <p>13 compact than the black population in Illustrative</p> <p>14 District 7?</p> <p>15 A. I don't have an opinion comparing</p> <p>16 them.</p> <p>17 Q. Do you intend to offer an opinion</p> <p>18 about the compactness of the black population</p> <p>19 within Illustrative District 25 and Plans 2 and 3?</p> <p>20 A. If the district is the same, then it</p> <p>21 would be repetitive. If it's different, then, no.</p> <p>22 Q. Turning to the supplemental report,</p> <p>23 page 13, you have a section about race</p> <p>24 predominating in the drawing of Illustrative</p>	<p style="text-align: right;">Page 231</p> <p>1 Q. So your supplemental report section</p> <p>2 about your opinion that race predominated in the</p> <p>3 drawing of Illustrative District 7 in Fairfax Plans</p> <p>4 2 and 3, your first report analyzing Fairfax Plan 1</p> <p>5 does not contain such a section.</p> <p>6 Do you intend to offer an opinion</p> <p>7 that race predominated in the drawing of</p> <p>8 Illustrative District 7 in Fairfax Plan 1?</p> <p>9 A. Maybe as tangentially to the extent</p> <p>10 that the things that I discuss in Map 1 are</p> <p>11 relevant to that; but I don't think I have a direct</p> <p>12 opinion on that, no.</p> <p>13 As a matter of fact, let me just --</p> <p>14 Before I --</p> <p>15 I might be able to give it to you</p> <p>16 without a caveat.</p> <p>17 I don't think I have that opinion</p> <p>18 for Illustrative District 1 -- or Illustrative</p> <p>19 District 7 in Map 1.</p> <p>20 Q. Why did you include sections on</p> <p>21 racial predominance for Plans 2 and 3 but not</p> <p>22 Plan 1?</p> <p>23 A. I don't think I can discuss that.</p> <p>24 Q. Because it's privileged?</p>
<p style="text-align: right;">Page 230</p> <p>1 District 7 in Plan 2.</p> <p>2 In figure 10 on page 14, are you</p> <p>3 representing that every VTD in Limestone, Madison,</p> <p>4 and Morgan Counties has a BCVPAP of at least 30</p> <p>5 percent?</p> <p>6 A. No.</p> <p>7 Q. How are BCVPAPS lower than 30 percent</p> <p>8 represented?</p> <p>9 A. They aren't.</p> <p>10 Q. Why does the lighter color in</p> <p>11 Figure 11 not appear in Figure 10?</p> <p>12 A. You mean the white?</p> <p>13 Q. Yes.</p> <p>14 A. Because there aren't -- I think</p> <p>15 because there aren't empty VTDs. Or if they are,</p> <p>16 they're so small that they don't show up.</p> <p>17 Q. Is the first map -- Is the top map</p> <p>18 for BVAP percentage and the bottom BVAP total BVAP?</p> <p>19 A. The top map is BVAP percentage in</p> <p>20 VTDs. The bottom is BVAP percentage in census</p> <p>21 blocks.</p> <p>22 Q. Okay.</p> <p>23 A. That's why one says "with blocks</p> <p>24 shaded by BVAP."</p>	<p style="text-align: right;">Page 232</p> <p>1 A. Yes.</p> <p>2 Q. Did you analyze whether it is</p> <p>3 possible to draw Illustrative District 7 in Plan 2</p> <p>4 with a higher BCVPAP?</p> <p>5 A. I don't remember.</p> <p>6 Q. So do you not -- You do not have an</p> <p>7 opinion as to whether Mr. Fairfax maximized BCVPAP</p> <p>8 in Plan 2, District 7?</p> <p>9 A. If it's in the report and I have</p> <p>10 forgotten about it since we've been going for</p> <p>11 almost seven hours, then I do; but I don't remember</p> <p>12 that being in the report.</p> <p>13 Q. I'll represent it's not in the</p> <p>14 report.</p> <p>15 A. Okay.</p> <p>16 Q. Turning to page 3, Illustrative</p> <p>17 District 7 on page 24 of the supplemental report,</p> <p>18 what is the basis for your opinion that there are</p> <p>19 only a handful of configurations in the area that</p> <p>20 will get a map drawer to 50-percent-plus-one BVAP?</p> <p>21 A. Ah, because the --</p> <p>22 Well, I -- I think it's spelled out</p> <p>23 pretty plainly in my thought process in this</p> <p>24 section. There just aren't additional accessible</p>



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<p style="text-align: right;">Page 233</p> <p>1 precincts that have a sufficiently high BVAP to 2 draw the district. 3 Most of the low BVAP precincts, you 4 can't cut out of this district, uhm, to allow you 5 to get to something that might be acceptable. 6 Adding -- adding precincts where 7 BVAPs are below 30 percent isn't going to improve 8 the BVAP of the district, and that's pretty much 9 all that's left. 10 Q. How many configurations is a, quote, 11 handful? 12 A. I didn't count. Not many. 13 Q. In your opinion, how different does 14 a map have to be from another map in order to 15 qualify as a distinct configuration? 16 A. I don't have a strict cutoff. 17 Q. Did you draw majority BVAP districts 18 in the Greater Huntsville area? 19 A. Ah, the only alternative 20 configurations I could come up with in the four 21 counties that Mr. Fairfax analyzed would be adding 22 one of those precincts to the northwest of -- uhm, 23 in the northwestern -- or the northern portion, I 24 guess, of Lawrence County.</p>	<p style="text-align: right;">Page 235</p> <p>1 A. I can't remember if you could do 2 that or not, because I think this district -- this 3 district is either right at the bottom of 4 population deviations or right at the top; and a 5 lot of the alternative configurations I looked at 6 created problems with that, and I can't remember if 7 that type of switch was in there or not. 8 Q. On page 25, you say that, Fairfax 9 Map 3, District 7, once again, takes in every 10 precinct with a BVAP above 30 percent in the, 11 quote, traditional, closed quote, three counties' 12 configuration. 13 What do you mean by "traditional"? 14 A. The ones that were used in the other 15 two maps. 16 Q. You write that transferring the 17 27.1 percent Madison County precinct out of 18 illustrative district creates one-person/one-vote 19 problems. 20 Could that be remedied by including 21 either or both of the 60 percent BVAP precinct 22 and/or 41.1 percent BVAP precinct in Lawrence 23 County? 24 A. Where are we? What page?</p>
<p style="text-align: right;">Page 234</p> <p>1 Q. Does Mr. Fairfax's decision to 2 in- -- ex- -- exclude the 60 percent BVAP precinct 3 and include that 21 percent BVAP precinct make the 4 illustrative district more compact than if he had 5 done the reverse? 6 A. I don't know, but I'm not -- 7 I -- I don't know if he could have 8 done that because of population concerns. Uhm, I'm 9 not sure. 10 There are a lot of tricky issues 11 raised by trying to alter this district and keep it 12 50 percent plus one. 13 Q. But your map there, Figure 21, shows 14 that there are adjacent precincts that are 15 60 percent BVAP and 41.1 percent BVAP that 16 Mr. Fairfax did not include. Correct? 17 A. Well, the 41.1 percent BVAP would 18 drop the BVAP of the district. That additional 19 60 percent BVAP precinct would improve it. 20 Q. But if he had included the 21 41.1 percent BVAP and excluded the 21.1 percent 22 BVAP that's on the border there, then that 23 would have been -- that would have raised the BVAP 24 percentage. Correct?</p>	<p style="text-align: right;">Page 236</p> <p>1 Q. That's the middle of page 29, The 2 27.1 percent BVAP precinct in the district has a 3 population of 5,237, meaning that transferring it 4 to District 2 creates one-person/one-vote problems. 5 So my question is, if those 6 precincts that we discussed of the 60 percent at 7 41.1 percent were moved into the district, could 8 that have remedied one-person/one-vote problems? 9 A. No. 10 Q. Could it have remedied it with other 11 changes made in other places in the map? 12 A. So if you take the 27.1 percent 13 district out and transfer it into District 2, 14 District 2 is over populated. Uhm, you can remedy 15 that by putting the 27.9 percent and 25.2 percent 16 precincts into -- back into District 7, I believe. 17 And then I -- I think you can still -- 18 I mean, that -- that's what -- 19 That's the configuration I came up with that solves 20 the one-person/one -- the trade I came up with that 21 would solve the one-person/one-vote problem. 22 Uhm, I don't remember if that 23 district was majority BVAP or not or if it would be 24 by adding those two districts.</p>



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<p style="text-align: right;">Page 237</p> <p>1 But, again, we're con- -- The point 2 is we're concentrating on the same handful of 3 precincts that you can move around. The district 4 shape is pretty much set, uhm, if you're trying to 5 get to a majority BVAP. 6 Q. What I'm saying is you can't exclude 7 the possibility that the District 2 issue, by 8 adding the 27.1 percent dis- -- precinct District 2 9 couldn't be remedied by making other changes to 10 District 2 not present in your graph here. 11 A. Oh. You mean like walking 12 District 2 over through a bunch of other districts? 13 I don't think that the population of 14 these two districts up here is enough to compensate 15 for the 27.1 percent, but I could be wrong. And in 16 any event, I admit that there are other 17 configurations that work. There's just not many of 18 them. 19 Q. In what ways do you believe you're 20 qualified to render an opinion about Mr. Fairfax's 21 intent in drawing Illustrative District 7? 22 A. To the extent it is, ah, apparent 23 from the racial makeup of the precincts that are 24 included and excluded, I think I am perfectly</p>	<p style="text-align: right;">Page 239</p> <p>1 compactness of the district considerably. 2 Q. What about county pieces, is that 3 something that's relevant; the splits within a 4 county, how many times a county's split? 5 A. Can be. 6 Q. Are you aware of how many pieces 7 Madison County is split into in the enacted plan? 8 A. No. 9 Q. Would it surprise you if it were -- 10 if I represented it were -- it was five? 11 A. No. 12 Q. Are you aware of how many pieces 13 Madison County is split into in the illustrative 14 plans? 15 A. No. 16 Q. Would it surprise you if I said that 17 was -- Madison County split four times? 18 A. No. 19 Q. Do you find that relevant to 20 traditional redistricting criteria, the number of 21 times that Madison County split? 22 A. It can be. 23 Q. Have you testified in any other case 24 that race predominated the plaintiffs' Gingles 1</p>
<p style="text-align: right;">Page 238</p> <p>1 qualified because there just aren't many other 2 opportunities available. 3 The only reason you could do this, 4 ah, is -- the on- -- This is the only way you 5 get -- more or less get to a 50-percent-plus- 6 one district. 7 Q. Are there any other bases for your 8 opinion that race predominated in the drawing of 9 District 7 other than the precincts that were 10 selected for inclusion and exclusion in the 11 district? 12 A. Well, there can't be any compelling 13 reason for going over into Lawrence County, or else 14 Mr. Fairfax would have done that in one of his 15 other two maps that don't -- that doesn't go into 16 Morgan County. You can't draw a majority BVAP 17 district in the three counties that we have for the 18 three counties we traditionally looked at, ah, 19 so -- 20 Q. Are you aware of a conflict with 21 traditional redistricting criteria that exists by 22 going into Lawrence County with District 7? 23 A. You create the only district that 24 splits four counties in the state, and you drop the</p>	<p style="text-align: right;">Page 240</p> <p>1 map- -- map-drawers drawing of an illustrative 2 district? 3 A. Louisiana case, I think. 4 No, I don't even re- -- I don't even 5 remember at this point whether that was an opinion 6 in the Louisiana case or not. 7 Q. Did you analyze the compactness of 8 Illustrative District 25 in any of Mr. Fairfax's 9 plans? 10 A. No. 11 Q. Why not? 12 A. I don't think I can answer that. 13 Q. Because it's privileged? 14 A. Yes. 15 Q. Let's turn to page 10 of your 16 supplemental report. 17 Okay. Why did you use Reock, 18 Polsby-Popper, and Cut Edges Force in your 19 analysis? 20 A. Because Reock and Polsby-Popper are 21 probably the most commonly used metrics; and Cut 22 Edges, uhm, is one that was used in the Allen v. 23 Milligan litigation, so I knew the judge would be 24 familiar with it.</p>



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<p style="text-align: right;">Page 241</p> <p>1 Q. Why not use Convex Hull?</p> <p>2 A. I mean, you can use Convex Hull.</p> <p>3 There's nothing particularly wrong with it.</p> <p>4 Q. Does Convex Hull provide more data</p> <p>5 that you can't get from this three?</p> <p>6 A. It provide -- it provides data on</p> <p>7 how square or octagonal a district is, so it's</p> <p>8 additional data.</p> <p>9 Q. What source do you use to calculate</p> <p>10 the compactness force?</p> <p>11 A. R Coding.</p> <p>12 Q. When you refer to, quote, Northern</p> <p>13 Alabama, closed quote, throughout this section, are</p> <p>14 you referring to Districts 1, 2, 3, 6, 7, 8, 9, 10,</p> <p>15 and 17?</p> <p>16 A. Uhm, no.</p> <p>17 Q. What are you referring to?</p> <p>18 A. Ah, when I use those districts, I'm</p> <p>19 refer- -- I'm using it to refer to the districts</p> <p>20 that Mr. Fairfax changes in northern Alabama.</p> <p>21 Q. So Mr. Fairfax's Illustrative</p> <p>22 Districts 1, 2, 3, 6, 7, 8, 9, 10, and 17?</p> <p>23 A. Those are in a contiguous group</p> <p>24 of districts in the north that get changed as a</p>	<p style="text-align: right;">Page 243</p> <p>1 beyond that, no. And I think we've been pretty</p> <p>2 exhaustive in our coverage of the report.</p> <p>3 Q. In forming your opinions that the</p> <p>4 black population in the Montgomery and Greater</p> <p>5 Huntsville areas is not, quote, sufficiently</p> <p>6 geographically compact to constitute a majority in</p> <p>7 an additional reasonably configured single-number</p> <p>8 district, closed quote, did you review sources</p> <p>9 other than Mr. Fairfax's report?</p> <p>10 A. No, I don't believe so, unless it's</p> <p>11 mentioned in the report.</p> <p>12 MR. GENBERG: Okay. If we could</p> <p>13 take a break.</p> <p>14 (Brief recess.)</p> <p>15 BY MR. GENBERG:</p> <p>16 Q. Did you discuss with counsel the</p> <p>17 substance of the deposition?</p> <p>18 A. Not this time.</p> <p>19 Q. Is the point estimate the best guess</p> <p>20 of CVAP in a district?</p> <p>21 A. It's the maximum likelihood</p> <p>22 estimate, but it's not necessarily more likely than</p> <p>23 not the estimate for the true population value.</p> <p>24 Q. In Arizona, did you express in your</p>
<p style="text-align: right;">Page 242</p> <p>1 par- -- as part of redrawing District 7.</p> <p>2 So that's kind of part of a --</p> <p>3 When you draw districts, you change</p> <p>4 one district, and it has a cascade of changes; but</p> <p>5 it doesn't have to extend across the entire map.</p> <p>6 It might be as few as three districts or two</p> <p>7 districts or maybe it's 20. Uhm, but these are --</p> <p>8 This is an isolated pocket of contiguous districts</p> <p>9 that represents the cascade of changes in the</p> <p>10 Huntsville area.</p> <p>11 Q. Do you contend that Districts 1, 6,</p> <p>12 10, and 17 are in the Greater Huntsville region?</p> <p>13 A. No. But they're part of the cascade</p> <p>14 that is created by the changes in 7.</p> <p>15 Q. Do you plan to offer any opinions in</p> <p>16 this case that we have not discussed relevant to</p> <p>17 the determination of whether black population in</p> <p>18 the Montgomery and Greater Huntsville areas is,</p> <p>19 quote, sufficiently large and geographically</p> <p>20 compact constitutes a majority and an additional</p> <p>21 reasonably configured single-member district?</p> <p>22 A. If there's anything in the reports</p> <p>23 that we haven't covered that goes to that, then I</p> <p>24 suppose I would also order that -- offer that; but</p>	<p style="text-align: right;">Page 244</p> <p>1 report that CVAP needed to be offered with a margin</p> <p>2 of error?</p> <p>3 A. Yes. We specifically referenced the</p> <p>4 error margins that come with the ACS.</p> <p>5 Q. Did you calculate an error margin?</p> <p>6 A. No, because we didn't do a Gingles 1</p> <p>7 analysis.</p> <p>8 Q. Did you provide an error margin to</p> <p>9 the Commission?</p> <p>10 A. I can't answer that.</p> <p>11 Q. Can we get the report?</p> <p>12 A. I can say in Arizona --</p> <p>13 Well, let's get the report and</p> <p>14 then --</p> <p>15 Q. Okay.</p> <p>16 MR. UNGER: I'll let you handle that</p> <p>17 one. Actually, madam court reporter, hand you a</p> <p>18 copy, as well.</p> <p>19 ---</p> <p>20 Thereupon, a document was marked for</p> <p>21 purposes of identification as Exhibit 14 by the</p> <p>22 reporter.</p> <p>23 ---</p> <p>24</p>



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<p style="text-align: right;">Page 245</p> <p>1 BY MR. GENBERG:</p> <p>2 Q. So it's actually about -- after,</p> <p>3 like, page 61 is Appendix A.</p> <p>4 So does this appear to be a document</p> <p>5 titled, Arizona Independent Redistricting</p> <p>6 Commission Overview of Decennial Redistricting</p> <p>7 Process and Maps, January 2022?</p> <p>8 A. Yes.</p> <p>9 Q. Does this appear to be a memo from</p> <p>10 Stephen Ansolabehere, David Sutton, and</p> <p>11 Sean Trende --</p> <p>12 A. Yes.</p> <p>13 Q. -- to the Arizona Independent</p> <p>14 Redistricting Commission dated January 2022</p> <p>15 regarding characteristics of Congressional District</p> <p>16 Map 14.0?</p> <p>17 A. Yes.</p> <p>18 Q. If we turn to Table 2, which is two</p> <p>19 pages after numbered page 18, it should have a</p> <p>20 Table 2 CVAP demographics.</p> <p>21 Do you see that?</p> <p>22 A. Yes.</p> <p>23 Q. And you calculated HCVAP to be</p> <p>24 50.4 percent in District 3 and 50.5 percent in</p>	<p style="text-align: right;">Page 247</p> <p>1 Right?</p> <p>2 A. Well, we represent both the total</p> <p>3 population and CVAP when we're making that claim.</p> <p>4 Q. But when you say "majority</p> <p>5 Hispanic," you don't have a caveat that -- that</p> <p>6 because it's only .4 percent or .5 percent over</p> <p>7 50 percent, that it's within a margin of error, do</p> <p>8 you?</p> <p>9 A. Well, first, these are congressional</p> <p>10 districts, so I don't know that it's within the</p> <p>11 margin of error.</p> <p>12 And second, these aren't Gingles 1</p> <p>13 illustrative districts. So the 50 percent</p> <p>14 threshold isn't crucial here to the analysis.</p> <p>15 Q. But you still claim it to be a</p> <p>16 majority Hispanic CVAP district without a</p> <p>17 qualification?</p> <p>18 A. We clarified earlier, unlike the</p> <p>19 census figures, ACS data do have error margins.</p> <p>20 I don't recall whether the error</p> <p>21 margins calculated for the districts would have</p> <p>22 included 50 percent or not. I think you're talking</p> <p>23 about much larger populations than you have with</p> <p>24 senate -- state senate seats.</p>
<p style="text-align: right;">Page 246</p> <p>1 District 7, the HCVAP?</p> <p>2 A. That's correct.</p> <p>3 Q. And you did not express that this</p> <p>4 HCVAP point estimate required a margin of error</p> <p>5 here?</p> <p>6 A. So if you go back to pages 2 and 3</p> <p>7 of the memo, we clarify that, Unlike the Decennial</p> <p>8 Census, the ACS is conducted annually, is not a</p> <p>9 complete count of residents. Rather, it reflects a</p> <p>10 random sample of the population. Using the ACS</p> <p>11 data, the Census Bureau classifies adult citizens</p> <p>12 as people who are at least 18 years, blah, blah,</p> <p>13 blah. The most recent annual data available are</p> <p>14 the 2019 ACS, and the most recent five-year average</p> <p>15 covers 2015 to 2019. Here we utilize the five-year</p> <p>16 average. Unlike the census figures, ACS data do</p> <p>17 have error margins.</p> <p>18 Q. Okay. If we then move down to the</p> <p>19 paragraph right below that, it says, Two districts</p> <p>20 have majority Hispanic populations CD3 and CD7. Is</p> <p>21 that right?</p> <p>22 A. Yes.</p> <p>23 Q. And that's based on the Table 2</p> <p>24 calculations of 50.4 percent and 50.5 percent.</p>	<p style="text-align: right;">Page 248</p> <p>1 Uhm, and, again, the 50 percent</p> <p>2 margin just isn't crucial 'cause it's not a</p> <p>3 Gingles 1.</p> <p>4 Q. Okay. Let's turn to Gingles 2</p> <p>5 and 3.</p> <p>6 Are you aware of the second Gingles</p> <p>7 threshold?</p> <p>8 A. Yes.</p> <p>9 Q. And you understand it to be what?</p> <p>10 A. That you have to prove that the</p> <p>11 majority pop- -- or the minority population votes</p> <p>12 as a bloc.</p> <p>13 Q. Have you undertaken an analysis</p> <p>14 relating to whether plaintiffs have met the second</p> <p>15 Gingles threshold in this case?</p> <p>16 A. No.</p> <p>17 Q. Do you intend to testify at trial as</p> <p>18 to the political cohesion of black voters in</p> <p>19 Montgomery or the Greater Huntsville area?</p> <p>20 A. No.</p> <p>21 Q. Are you aware of the third Gingles</p> <p>22 threshold?</p> <p>23 A. Third Gingles threshold is whether</p> <p>24 the majority of the population votes sufficiently</p>



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<p style="text-align: right;">Page 249</p> <p>1 as a bloc to defeat the minority candidate of 2 choice. 3 Q. Have you undertaken an analysis 4 relating to whether plaintiffs have met the third 5 Gingles -- Gingles threshold in this case? 6 A. Uhm, so I know there are theories 7 floating around out there that at least one court 8 has endorsed that you do an effectiveness analysis 9 at the 50 percent mark to -- as part of this 10 inquiry; and so that is why I have engaged in this 11 analysis here. So I think the effectiveness 12 analysis is at least arguably related to Gingles 3. 13 Q. And so your opinion is that it is 14 possible that a court will assess that if the 15 illustrative district could be effective at less 16 than 50 percent BVAP, then -- or BCVAP, then 17 there's -- there's a white bloc -- that there is no 18 white bloc voting? 19 A. I believe the way the argument runs 20 is that there's insufficient bloc voting to justify 21 the creation of a Gingles district. 22 When we're talking about census 23 blocks it's b-l-o-c-k. 24 When we talk about the way that</p>	<p style="text-align: right;">Page 251</p> <p>1 A. I think ecological inference is 2 perfectly sound. 3 Q. Do you intend to testify at trial 4 concerning Dr. Liu's analysis or report? 5 A. Uhm, I mean, if you cross-examine me 6 on it, I guess I will be talking about it; but I 7 don't necessarily anticipate doing it in my direct. 8 Q. Do you understand your effectiveness 9 analysis to be relevant to the Gingles 1 inquiry? 10 A. No. 11 Q. Do you intend to testify that voting 12 is not racially polarized in either the Greater 13 Huntsville area or in Montgomery? 14 A. All I'm going to testify to is the 15 threshold at which districts begin to vote -- the 16 districts begin to vote to elect the minority 17 candidate of choice. 18 Q. Do you agree that each of the three 19 illustrative plans would be effective for black 20 voters in District 7 and in District 25? 21 A. At what threshold? 22 Q. At the as-drawn. 23 A. Ah, they would -- they would tend to 24 elect the minority candidate of choice, yeah.</p>
<p style="text-align: right;">Page 250</p> <p>1 groups vote, it's typically b-l-o-c. 2 Q. So under this formulation of 3 Gingles 3, it's possible that any white bloc 4 voting -- sorry -- any white crossover voting 5 would -- of any level would -- would mean that 6 there wasn't white bloc voting? 7 A. I don't know. 8 Q. Do you -- Have you undertaken an 9 analysis of Dr. Liu's report? 10 A. No. 11 Q. Do you dispute anything in Dr. Liu's 12 report? 13 A. Uhm, I don't know. 14 Q. Do you disagree with Dr. Liu's 15 racially polarized voting analysis in any way? 16 A. I don't think I disagree with the 17 numbers that he comes up with. 18 Q. Do you disagree with the data 19 Dr. Liu uses in his racially polarized voting 20 analysis? 21 A. I don't have any critique of that. 22 Q. Do you disagree with the methodology 23 that Dr. Liu uses in his racially polarized voting 24 analysis?</p>	<p style="text-align: right;">Page 252</p> <p>1 Q. Does that mean that they're 2 effective? 3 A. They would -- Yeah, they would tend 4 to elect the minority candidate of choice. 5 Q. All right. Prior to your work for 6 this case, had you ever conducted a racially 7 polarized voting analysis? 8 A. Yes. 9 Q. In what situation? 10 A. So I think we already covered this, 11 but I did it in the Michigan case and I did it in 12 the Tennessee case, listed on my resume; -- 13 Q. How was your -- 14 A. -- and that was part of the analysis 15 conducted in the Arizona Independent Redistricting 16 Commission. 17 Q. How is your analysis perceived in 18 the Michigan and Tennessee cases? 19 A. I don't know if the Court ruled on 20 it in the Tennessee case; but I don't think anyone 21 disputed it, uhm, in the, ah, Michigan case. 22 Yeah, the Court didn't rule on the 23 VRA claim in the Michigan case, so it wasn't -- 24 And we're in a weird situation there</p>



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<p style="text-align: right;">Page 253</p> <p>1 where the other expert re-ran my analysis and came</p> <p>2 up with the same answer, so, ah, that was weird.</p> <p>3 Q. You write in -- Sorry.</p> <p>4 Prior to your work for this case,</p> <p>5 had you ever conducted an effectiveness analysis to</p> <p>6 determine the BVAP necessary for a district to</p> <p>7 perform for black voters?</p> <p>8 A. No.</p> <p>9 Q. You write in your first report that</p> <p>10 you analyzed eight statewide elections in 2018 and</p> <p>11 2022.</p> <p>12 Are these the first eight elections</p> <p>13 listed in Table 2 of Dr. Liu's first report on</p> <p>14 page 8? And that's Exhibit 6.</p> <p>15 A. Yeah. Yes.</p> <p>16 Q. These are the 2022 Gubernatorial</p> <p>17 election, 2022 U.S. Senate election, 2022 Attorney</p> <p>18 General election, 2022 Secretary of State election,</p> <p>19 2022 Supreme Court place-five election; 2018</p> <p>20 Lieutenant Governor election, 2018 State Auditor</p> <p>21 election, and 2018 Public Service Commission</p> <p>22 place-one election.</p> <p>23 Correct.</p> <p>24 A. Yes.</p>	<p style="text-align: right;">Page 255</p> <p>1 exogenous elections, you can look at how people</p> <p>2 voted in precincts in the reconfigured district</p> <p>3 exactly.</p> <p>4 You can't -- you can't reconfigure</p> <p>5 the elections that occurred in Senate District 7 in</p> <p>6 2018, because now Senate District 7 has been</p> <p>7 redrawn into a different place.</p> <p>8 Q. Okay. Well, what's a closer</p> <p>9 comparison to the Senate District 7 future</p> <p>10 elections? The recent Senate District 7 elections</p> <p>11 or elections for governor?</p> <p>12 A. Well, for the newly con- -- the</p> <p>13 illustrative District 7, you can't recreate</p> <p>14 Deborah Barrows versus Sam Giffin because you've</p> <p>15 completely refigured the district.</p> <p>16 Q. Did you conduct your own racially</p> <p>17 polarized voting analysis on the eight elections</p> <p>18 that you reviewed?</p> <p>19 A. Yes.</p> <p>20 Q. How did you do this?</p> <p>21 A. In R.</p> <p>22 Q. What data did you input into R?</p> <p>23 A. The specific data, I don't recall</p> <p>24 off the top of my head; but it was provided to</p>
<p style="text-align: right;">Page 254</p> <p>1 Q. Are you familiar with the term</p> <p>2 "endogenous elections"?</p> <p>3 A. Yes.</p> <p>4 Q. So if we look at the prior page,</p> <p>5 page 7, Dr. Liu analyzed 2018 and 2022 elections</p> <p>6 for Senate District 7 and the 2022 election for</p> <p>7 Senate District 2.</p> <p>8 Did you analyze these elections?</p> <p>9 A. No.</p> <p>10 Q. Why not?</p> <p>11 A. I didn't have the data.</p> <p>12 Q. Do you disagree with Dr. Liu's</p> <p>13 opinion that the endogenous elections are more</p> <p>14 probative for assessing racially polarized voting</p> <p>15 than exogenous elections?</p> <p>16 A. Yeah, I've gone back and forth on</p> <p>17 that. The endogenous elections have the benefit</p> <p>18 that they're easier to recalculate for different</p> <p>19 configurations of districts; but they're also</p> <p>20 statewide candidates, not local candidates.</p> <p>21 Q. Do the exogenous elections re-create</p> <p>22 the conditions of the election at issue, as -- as</p> <p>23 well as the endogenous elections?</p> <p>24 A. Well, yeah, because you -- with the</p>	<p style="text-align: right;">Page 256</p> <p>1 counsel, along with my code.</p> <p>2 Q. In your first report, did you get</p> <p>3 the same results as Dr. Liu did for black support</p> <p>4 for the black-preferred candidate and white support</p> <p>5 for the black-preferred candidate for these eight</p> <p>6 elections in the Greater Huntsville region?</p> <p>7 A. I don't remember.</p> <p>8 Q. Do you contest Dr. Liu's numbers for</p> <p>9 black support for the black-preferred candidate and</p> <p>10 white support for the black-preferred candidate for</p> <p>11 these eight elections?</p> <p>12 A. That's -- I mean, not directly.</p> <p>13 Q. How did you do it indirectly?</p> <p>14 A. I didn't say I did it indirectly.</p> <p>15 Q. Do you contest that at all?</p> <p>16 A. If we come up -- If there's some way</p> <p>17 that his results are inconsistent with mine, then I</p> <p>18 would dispute them; but based on what I've seen so</p> <p>19 far, I don't have a basis for disputing them.</p> <p>20 Q. Are you aware of his results being</p> <p>21 different than yours in any way?</p> <p>22 A. No.</p> <p>23 Q. You write that Dr. Liu identifies a</p> <p>24 substantial amount of crossover voting.</p>

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<p style="text-align: right;">Page 257</p> <p>1 Is it -- is it your opinion that</p> <p>2 between 10.2 percent and 18.4 percent white support</p> <p>3 for the black-preferred candidate is a substantial</p> <p>4 amount of crossover voting?</p> <p>5 A. I think that analysis was coming</p> <p>6 from his analysis on pages 12 through 14 where he's</p> <p>7 finding, for example, in the plaintiffs' plan</p> <p>8 36 percent white support for the black-preferred</p> <p>9 candidate in SD-7.</p> <p>10 Q. How did you conclude that even in</p> <p>11 the 25 percent BVAP range, the black candidate</p> <p>12 would win regularly?</p> <p>13 A. Uhm, this is spelled out in the</p> <p>14 report. Uhm, I reran the ecological inference</p> <p>15 which identified the turnout rates for the</p> <p>16 different racial groups, ah, estimated, as well as</p> <p>17 the, uhm, estimated -- estimates for voting; uhm,</p> <p>18 and then perturbed the -- kept the turnout rates</p> <p>19 constant, but perturbed the vote differen- -- or</p> <p>20 the voting rates of white voters, made it greater,</p> <p>21 made it less to see what support of -- of --</p> <p>22 No, that's not right. That's not</p> <p>23 right.</p> <p>24 Uhm, I took the --</p>	<p style="text-align: right;">Page 259</p> <p>1 33 percent level, the black-preferred candidate</p> <p>2 would still only receive a total of 49.7 percent --</p> <p>3 49.75 percent of the vote in a 25 percent BVAP</p> <p>4 district.</p> <p>5 So do you disagree with this</p> <p>6 analysis in any way?</p> <p>7 A. I mean, I don't -- I don't know what</p> <p>8 Dr. Liu did. He doesn't seem to have any direct</p> <p>9 criticism of what I did except to say he ran it</p> <p>10 differently and got a different result, so.</p> <p>11 I remember reading his report and</p> <p>12 wondering if he actually read mine, because I</p> <p>13 didn't understand how he was characterizing mine;</p> <p>14 but it is what it is at this point.</p> <p>15 Q. Is it your opinion that black and</p> <p>16 white support for the black-preferred candidate is</p> <p>17 not sensitive to the candidates on the ballot?</p> <p>18 A. No. I think it's sensitive to</p> <p>19 candidates on the ballot.</p> <p>20 Q. And how would this affect your</p> <p>21 conclusion about the black candidate regularly</p> <p>22 winning at the 25 percent BVAP range?</p> <p>23 A. It wouldn't, because we're examining</p> <p>24 the eight exogenous elections which we can recreate</p>
<p style="text-align: right;">Page 258</p> <p>1 We know what the BVAP is of the</p> <p>2 district. And so keeping the turnout rates</p> <p>3 constant and the voting rates constant, I lowered</p> <p>4 the BVAP and increased the white voting age</p> <p>5 population and vice versa to see how this district</p> <p>6 would perform at different levels of BVAP and White</p> <p>7 VAP.</p> <p>8 That's the first full paragraph from</p> <p>9 the bottom.</p> <p>10 I took the results for turnout and</p> <p>11 vote share and then increased or decreased the</p> <p>12 White VAP by one percent -- that should be</p> <p>13 sequentially, not whatever it is that I wrote --</p> <p>14 and changed the BVAP by the same amount in the</p> <p>15 opposite direction.</p> <p>16 Q. So Dr. Liu in his rebuttal report,</p> <p>17 Exhibit 7, page 10, he performs a verification</p> <p>18 study of your claim that 25 percent BVAP would be</p> <p>19 sufficient for black -- for candidates to win</p> <p>20 District 7; and he found that, even assuming black</p> <p>21 turnout is 100 percent and black voters vote for</p> <p>22 the black-preferred candidate at a 100 percent</p> <p>23 level, and the white turnout is a hundred percent</p> <p>24 and they vote for the black candidate at a</p>	<p style="text-align: right;">Page 260</p> <p>1 in District 7, uhm, and seeing how these races that</p> <p>2 include a black candidate would turn out at</p> <p>3 different levels of BVAP in the district.</p> <p>4 I'm not striking some arbitrary</p> <p>5 turnout level like Dr. Liu seems to strangely be</p> <p>6 talking about. I'm taking the turnout estimates</p> <p>7 from the ecological inference analysis.</p> <p>8 Q. How did you derive your turnout</p> <p>9 estimates?</p> <p>10 A. By running the ecological inference</p> <p>11 analysis. It tells you what the estimates are for</p> <p>12 turnout, as well as for the voting rates.</p> <p>13 Q. And these are the turnout rates for</p> <p>14 the statewide elections?</p> <p>15 A. In the newly configured -- In the</p> <p>16 Illustrative District 7, yes.</p> <p>17 Q. Is it your opinion that black and</p> <p>18 white support for the black-preferred candidate is</p> <p>19 not sensitive to the racial makeup of the</p> <p>20 district's electorate?</p> <p>21 A. Can you repeat that?</p> <p>22 Q. Is it your opinion that black and</p> <p>23 white support for the black-preferred candidate is</p> <p>24 not sensitive to the racial makeup of the</p>



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<p style="text-align: right;">Page 261</p> <p>1 district's electorate?</p> <p>2 A. I don't have an opinion on that.</p> <p>3 Q. Okay. In your supplemental report</p> <p>4 on -- starting on page 15, you analyze Illustrative</p> <p>5 Plan 2, District 7.</p> <p>6 What results did you get for black</p> <p>7 support for the black-preferred candidate and white</p> <p>8 support for the black-preferred candidate in this</p> <p>9 district.</p> <p>10 A. You could extract it from the code.</p> <p>11 I don't know.</p> <p>12 Q. How did your results for the black</p> <p>13 support for the black-preferred candidate and white</p> <p>14 support for the black-preferred candidate compare</p> <p>15 to your results for Illustrative Plan 1?</p> <p>16 A. I don't know. I'm sure they varied</p> <p>17 somewhat, because ecological inference has a random</p> <p>18 aspect to it. But I wrote down in the code the</p> <p>19 exact results that I got when I ran it.</p> <p>20 So if Dr. Liu had wanted it --</p> <p>21 wanted to compare that for his rebuttal report, he</p> <p>22 could have done so by reading my code.</p> <p>23 Q. At what BVAP level would the black</p> <p>24 candidate win Plan 2, District 7, regularly, in</p>	<p style="text-align: right;">Page 263</p> <p>1 candidate in these districts is always the</p> <p>2 Democrat, to my understanding.</p> <p>3 Q. Is that based on your review of the</p> <p>4 candidates or just your general understanding?</p> <p>5 A. Well, Dr. Liu spells it out on</p> <p>6 page 8 in the Huntsville region that all of these</p> <p>7 districts -- uhm, that in all of these races, the</p> <p>8 black support for the black candidate is</p> <p>9 90 percent.</p> <p>10 I suppose it's possible that Dr. Liu</p> <p>11 would like to testify that in some cases in</p> <p>12 District 7, Illustrative District 7, black voters</p> <p>13 have supported the Republican, I -- I guess; but</p> <p>14 that would surprise me.</p> <p>15 Q. So have you formed the opinion that</p> <p>16 white voters do not vote sufficiently as a bloc to</p> <p>17 defeat the black-preferred candidates in this</p> <p>18 analysis in Plan 2?</p> <p>19 A. In the reconstructed -- In the</p> <p>20 Illustrative District 7, uhm, not at a 50 percent</p> <p>21 BVAP level.</p> <p>22 Q. Do you believe that the illustrative</p> <p>23 district is the appropriate geographic area to</p> <p>24 consider for -- for white bloc voting?</p>
<p style="text-align: right;">Page 262</p> <p>1 your opinion?</p> <p>2 A. Ah, at least as low as 20 percent.</p> <p>3 Q. How did you form the opinion this</p> <p>4 area only expresses a modest preference for</p> <p>5 Republicans over Democrats?</p> <p>6 A. So this is probably taken from</p> <p>7 Dr. -- the same part of Dr. Liu's report where he</p> <p>8 has white support for Democrats in the area, like</p> <p>9 37 percent. I think that's what that comes from.</p> <p>10 And so if you were --</p> <p>11 You can do the math quickly in your</p> <p>12 head. 37 percent of whites are voting for</p> <p>13 Republicans and 90 percent of the blacks are voting</p> <p>14 for Democrats, at 50 percent, you're still going to</p> <p>15 get a lot of Democratic wins.</p> <p>16 Q. Are you talking about the Table 6,</p> <p>17 Overall Performance in SD-7 based on 11 elections?</p> <p>18 A. Yes.</p> <p>19 Q. So I -- I see white, black,</p> <p>20 black-preferred candidate, white-preferred</p> <p>21 candidate.</p> <p>22 How do you derive the opinions about</p> <p>23 Republicans and Democrats?</p> <p>24 A. Because the black-preferred</p>	<p style="text-align: right;">Page 264</p> <p>1 A. Well, that's where you're trying to</p> <p>2 justify the race-based voting, so -- or race-based</p> <p>3 drawing, so I would imagine that's the proper</p> <p>4 analysis area.</p> <p>5 It depends how the lawyers want to</p> <p>6 argue it, I suppose.</p> <p>7 Q. What about the enacted district</p> <p>8 that's being changed?</p> <p>9 A. Yeah. So this is where you get into</p> <p>10 the weirdness of Gingles applied to single-member</p> <p>11 districts; because in Gingles, it's a multi-member</p> <p>12 district, and it's pretty obvious how you do the</p> <p>13 analysis. You look at the polarized voting in the</p> <p>14 district as a whole, and you say the black</p> <p>15 candidate of choice doesn't win here, we need</p> <p>16 this -- this subsection of the district broken off.</p> <p>17 Here, I mean, you're -- you're</p> <p>18 drawing districts in completely different areas of</p> <p>19 the districts.</p> <p>20 So I've never been a hundred percent</p> <p>21 clear where particularly you're supposed to analyze</p> <p>22 for Gingles step -- Gingles Prong 2 and 3.</p> <p>23 Q. Are you analyzing any area other</p> <p>24 than the illustrative districts for purposes of</p>

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<p style="text-align: right;">Page 265</p> <p>1 white bloc voting?</p> <p>2 A. No.</p> <p>3 Q. In your supplemental report starting</p> <p>4 on page 30, you analyze Illustrative Plan 3,</p> <p>5 District 7.</p> <p>6 What results did you get for black</p> <p>7 support for the black-preferred candidate and white</p> <p>8 support for the black-preferred candidate in</p> <p>9 District 7?</p> <p>10 A. Ah, it's coded -- It's in my code,</p> <p>11 but I don't remember, because all I was looking at</p> <p>12 was the overall effectiveness of the district.</p> <p>13 Q. How did the results for</p> <p>14 effectiveness, ah, in -- in Plan 3, District 7,</p> <p>15 compare to your results for Illustrative Plans 1</p> <p>16 and 2?</p> <p>17 A. It still finds that the district is</p> <p>18 effective at sub-50 percent rates.</p> <p>19 It's higher probably because this</p> <p>20 district is stretching into deeply rural areas</p> <p>21 where you probably do get a lot of whites voting --</p> <p>22 a lot more whites voting Republicans than in</p> <p>23 suburban or urban areas these days.</p> <p>24 Q. At what BVAP level would the black</p>	<p style="text-align: right;">Page 267</p> <p>1 Q. Did you use just registered voters?</p> <p>2 A. No.</p> <p>3 Q. What data did you input into the --</p> <p>4 into your EI to calculate it or --</p> <p>5 A. The same way I've done it in other</p> <p>6 matters and the same way it was done in the</p> <p>7 Independent Redistricting Commission, by looking at</p> <p>8 the population data, and you derive the estimates</p> <p>9 as a result of 2-by-2 ecological inference.</p> <p>10 Q. What is 2-by-2 ecological inference?</p> <p>11 A. It's where you're looking to</p> <p>12 estimate both the --</p> <p>13 Well, 2-by-2 ecological inference is</p> <p>14 the technique for -- it's a reference to the</p> <p>15 contingency table.</p> <p>16 This is actually the MD Bayes</p> <p>17 command, so it's a Bayesian estimate of turnout</p> <p>18 using the same technique Gary King developed</p> <p>19 20 years ago.</p> <p>20 Q. When you say you look at the</p> <p>21 population data, are you talking about all</p> <p>22 population, all ages?</p> <p>23 A. No, no. It's the voting age</p> <p>24 population.</p>
<p style="text-align: right;">Page 266</p> <p>1 candidate win Plan 3, District 7, regularly, in</p> <p>2 your opinion?</p> <p>3 A. Ah, still well below 50 percent.</p> <p>4 Q. Do you have any opinions that you</p> <p>5 intend to offer in this case that we have not</p> <p>6 discussed today?</p> <p>7 A. Ah, I don't remember anything from</p> <p>8 the reports. I don't have any intention of</p> <p>9 offering opinions outside of the reports. So only</p> <p>10 to the extent we didn't cover something. And we've</p> <p>11 been pretty exhaustive.</p> <p>12 MR. GENBERG: Can we take a five to</p> <p>13 10-minute break, and --</p> <p>14 Mr. Seiss: Sure.</p> <p>15 MR. GENBERG: -- we'll be done or</p> <p>16 close to it.</p> <p>17 THE WITNESS: All right.</p> <p>18 (Brief recess.)</p> <p>19 BY MR. GENBERG:</p> <p>20 Q. So we just talked about the turnout</p> <p>21 calculations for your effectiveness analysis.</p> <p>22 Did you use the voter file as an</p> <p>23 input for that calculation?</p> <p>24 A. No.</p>	<p style="text-align: right;">Page 268</p> <p>1 Q. Voting age population.</p> <p>2 But not registered voters?</p> <p>3 A. I mean, you can use registered</p> <p>4 voters as a basis and figure out what turnout is</p> <p>5 from the registered voters; uhm, but ecological</p> <p>6 inference will calculate an estimate for what the</p> <p>7 turnout rates in each racial subgroup from the</p> <p>8 voting age population. If you use registered</p> <p>9 voters as your basis, it would tell you what</p> <p>10 percentage of registered voters turned out.</p> <p>11 Q. And where does the turnout data come</p> <p>12 from per election?</p> <p>13 A. Ecological -- The whole point of</p> <p>14 ecological inference is it looks at the votes that</p> <p>15 are cast, ah, in a district and the -- whatever</p> <p>16 your population reference point is. Has to</p> <p>17 calculate two unknowns, and it does it through an</p> <p>18 iterative process to get to the estimate for the</p> <p>19 percentage of people who are turning out, as well</p> <p>20 as the percentage of people who vote for a given</p> <p>21 candidate.</p> <p>22 Q. Okay. So you're looking at</p> <p>23 precinct-level election return data for the number</p> <p>24 of people who turned out, and then the denominator</p>

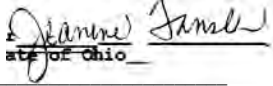
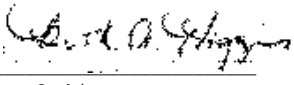
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<p style="text-align: right;">Page 269</p> <p>1 is total VAP?</p> <p>2 A. No. No.</p> <p>3 Q. Okay. Can you explain? What was</p> <p>4 wrong?</p> <p>5 A. What it -- What ecological inference</p> <p>6 is doing is estimating how many of those -- of the</p> <p>7 voting -- the potential percentage of voting age</p> <p>8 African-Americans --</p> <p>9 Let's say that there are a hundred</p> <p>10 African-Americans of voting age in a precinct.</p> <p>11 That gives you an upper bound to the number that</p> <p>12 could turn out.</p> <p>13 Let's say that 400 votes -- or let's</p> <p>14 say that 50 votes are cast in the precinct. We</p> <p>15 know that turnout couldn't be higher than</p> <p>16 50 percent, 'cause -- among voting age, the voting</p> <p>17 age population, because there aren't enough votes</p> <p>18 cast in the precinct. That ca- -- That gives you</p> <p>19 bounds on the potential turnout; and through an</p> <p>20 iterative process, it calculates -- it gives an</p> <p>21 estimate of what the most likely turnout among</p> <p>22 black voters would be, and it gives you an estimate</p> <p>23 for how those voters likely cast their ballots.</p> <p>24 Before we get ahead of ourselves,</p>	<p style="text-align: right;">Page 271</p> <p>1 does not make direct statements about the</p> <p>2 probability. It uses the kind of backwards</p> <p>3 reasoning that we discussed where it is a statement</p> <p>4 about the likelihood of giving -- of receiving the</p> <p>5 data we received given a particular hypothesis.</p> <p>6 MR. GENBERG: Okay. I don't have</p> <p>7 any other questions.</p> <p>8 Mr. Seiss: No questions for me.</p> <p>9 MR. GENBERG: All right. Thank you</p> <p>10 very much for coming in.</p> <p>11 THE WITNESS: All righty.</p> <p>12 THE REPORTER: You're not going to</p> <p>13 waive, I assume.</p> <p>14 THE WITNESS: I'll read and sign.</p> <p>15 THE REPORTER: And then you're</p> <p>16 ordering the original?</p> <p>17 MR. GENBERG: Yes.</p> <p>18 Mr. Seiss: If we could get just</p> <p>19 whatever you have, a rough or whatever, by close of</p> <p>20 business tomorrow, we would appreciate that.</p> <p>21 MR. GENBERG: And we'll take the</p> <p>22 rough as well, actually. Thank you.</p> <p>23 (Signature not waived.)</p> <p>24 - - -</p>
<p style="text-align: right;">Page 270</p> <p>1 this is a Bayesian analysis, so you can make direct</p> <p>2 statements about the probabilities.</p> <p>3 Q. Can you explain the Bayesian</p> <p>4 distinction?</p> <p>5 A. Again?</p> <p>6 Q. Yes.</p> <p>7 A. So just like there are two -- kind</p> <p>8 of two basic different ways to approach -- Uhm,</p> <p>9 just like there's two different ways to approach</p> <p>10 legal interpretation that you kind of get taught,</p> <p>11 an originalist approach and purposivist approach,</p> <p>12 and just like there are, say, two basic different</p> <p>13 schools of economics, the monetarist approach and</p> <p>14 the Keynesian approach. As I testified at length</p> <p>15 earlier, there are two different approaches to</p> <p>16 statistics. The frequentist approach and the</p> <p>17 Bayesian approach.</p> <p>18 This uses the Bayesian approach,</p> <p>19 which enables you to make direct statements about</p> <p>20 the probability of a point estimate being correct.</p> <p>21 Everything else that's been done,</p> <p>22 whenever you're talking about error margins or</p> <p>23 confidence intervals or p-values or hypothesis</p> <p>24 tests, you're doing a frequentist analysis, which</p>	<p style="text-align: right;">Page 272</p> <p>1 Thereupon, the deposition concluded at</p> <p>2 approximately 6:36 p.m.</p> <p>3 - - -</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p>



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<p>1 CERTIFICATE</p> <p>2 - - -</p> <p>3</p> <p>4</p> <p>5 THE STATE OF OHIO:</p> <p>6 SS:</p> <p>7 COUNTY OF FRANKLIN:</p> <p>8 I, Jeanine M. Fansler, a Professional</p> <p>9 Reporter and Notary Public in and for the State of</p> <p>10 Ohio, do hereby certify that before the taking of</p> <p>11 his said deposition (pages 1 through 83), the said</p> <p>12 Sean P. Trende was first duly sworn by me to tell</p> <p>13 the truth, the whole truth, and nothing but the</p> <p>14 truth;</p> <p>15 That said deposition was taken in all</p> <p>16 respects pursuant to the stipulations of counsel</p> <p>17 heretofore set forth; that the foregoing is the</p> <p>18 deposition given at the said time and place by the</p> <p>19 said Sean P. Trende;</p> <p>20 That I am not an attorney for or</p> <p>21 relative of either party and have no interest</p> <p>22 whatsoever in the event of this litigation.</p> <p>23 IN WITNESS WHEREOF, I have hereunto set</p> <p>24 my hand and official seal of office at Columbus,</p> <p>Ohio, this 20th day of May, 2024.</p> <p></p> <p>/s/Jeanine M. Fansler</p> <p>Notary Public, State of Ohio</p> <p>My Commission Expires: November 28, 2024.</p> <p>- - -</p>	<p>1 Reference No.: 11162726</p> <p>2</p> <p>3 Case: STONE vs WES ALLEN</p> <p>4</p> <p>5 DECLARATION UNDER PENALTY OF PERJURY</p> <p>6 I declare under penalty of perjury that</p> <p>7 I have read the entire transcript of my Depo-</p> <p>8 sition taken in the captioned matter or the</p> <p>9 same has been read to me, and the same is</p> <p>10 true and accurate, save and except for</p> <p>11 changes and/or corrections, if any, as indi-</p> <p>12 cated by me on the DEPOSITION ERRATA SHEET</p> <p>13 hereof, with the understanding that I offer</p> <p>14 these changes as if still under oath.</p> <p>15</p> <p>16 _____</p> <p>17 Sean P. Trende</p> <p>18</p> <p>19 NOTARIZATION OF CHANGES</p> <p>20 (If Required)</p> <p>21</p> <p>22 Subscribed and sworn to on the _____ day of</p> <p>23 _____, 20____ before me,</p> <p>24</p> <p>25 (Notary Sign)_____</p> <p>26</p> <p>27 (Print Name) _____ Notary Public,</p> <p>28</p> <p>29 in and for the State of _____</p>
<p>1 CERTIFICATE</p> <p>2 - - -</p> <p>3</p> <p>4 THE STATE OF OHIO:</p> <p>5 SS:</p> <p>6 COUNTY OF FRANKLIN:</p> <p>7 I, Beth A. Higgins, a Professional</p> <p>8 Reporter and Notary Public in and for the State of</p> <p>9 Ohio, do hereby certify that before the taking of</p> <p>10 his deposition (pages 83 - 274) the said Sean P.</p> <p>11 Trende was first duly sworn by Jeanine M. Fansler</p> <p>12 to tell the truth, the whole truth, and nothing but</p> <p>13 the truth;</p> <p>14 That said deposition was taken in all</p> <p>15 respects pursuant to the stipulations of counsel</p> <p>16 heretofore set forth; that the foregoing is the</p> <p>17 deposition given at the said time and place by the</p> <p>18 said Sean P. Trende;</p> <p>19 That I am not an attorney for or</p> <p>20 relative of either party and have no interest</p> <p>21 whatsoever in the event of this litigation.</p> <p>22 IN WITNESS WHEREOF, I have hereunto set</p> <p>23 my hand and official seal of office at Columbus,</p> <p>24 Ohio, this 20th day of May, 2024.</p> <p></p> <p>/s/Beth A. Higgins</p> <p>Notary Public, State of Ohio</p> <p>My Commission Expires: July 16, 2025.</p> <p>- - -</p>	<p>1 Reference No.: 11162726</p> <p>2 Case: STONE vs WES ALLEN</p> <p>3 Page No. _____ Line No. _____ Change to: _____</p> <p>4</p> <p>5 Reason for change: _____</p> <p>6 Page No. _____ Line No. _____ Change to: _____</p> <p>7</p> <p>8 Reason for change: _____</p> <p>9 Page No. _____ Line No. _____ Change to: _____</p> <p>10</p> <p>11 Reason for change: _____</p> <p>12 Page No. _____ Line No. _____ Change to: _____</p> <p>13</p> <p>14 Reason for change: _____</p> <p>15 Page No. _____ Line No. _____ Change to: _____</p> <p>16</p> <p>17 Reason for change: _____</p> <p>18 Page No. _____ Line No. _____ Change to: _____</p> <p>19</p> <p>20 Reason for change: _____</p> <p>21 Page No. _____ Line No. _____ Change to: _____</p> <p>22</p> <p>23 Reason for change: _____</p> <p>24</p> <p>25 SIGNATURE: _____ DATE: _____</p> <p>Sean P. Trende</p>



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24
SIGNATURE: _____ DATE: _____
25 Sean P. Trende



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Plaintiffs Exhibit No. 29

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