

FILED
5th JUDICIAL DISTRICT COURT
Lea County
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NELDA CUELLAR
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STATE OF NEW MEXICO
COUNTY OF LEA
FIFTH JUDICIAL DISTRICT COURT

REPUBLICAN PARTY OF NEW MEXICO,
DAVID GALLEGOS, TIMOTHY JENNINGS,
DINAH VARGAS, MANUEL GONZALES, JR.,
BOBBY and DEANN KIMBRO, and
PEARL GARCIA,

Plaintiffs,

vs.

No. D-506-CV-2022-00041

MAGGIE TOULOUSE OLIVER in her official
capacity as New Mexico Secretary of State,
MICHELLE LUJAN GRISHAM in her official
capacity as Governor of New Mexico, HOWIE
MORALES in his official capacity as New Mexico
Lieutenant Governor and President of the New
Mexico Senate, MIMI STEWART in her official
capacity as President Pro Tempore of the New
Mexico Senate, and JAVIER MARTINEZ in his
official capacity as Speaker of the New Mexico
House of Representatives,

Defendants

ADDENDUM TO PLAINTIFFS' EXHIBITS TO THEIR FINDINGS & CONCLUSIONS

EXHIBITS 24 through 33 of 33
and AUTHENTICATING DECLARATION

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CERTIFICATE OF SERVICE

I certify that Plaintiffs' Exhibits to Their Findings & Conclusions Exhibits 24 through 33 of 33 and Authenticating Declaration were electronically filed and served via the State of New Mexico's Tyler/Odyssey E-File & Serve System, and served by email, on September 15, 2023.

/s/ Carter B. Harrison IV
Carter B. Harrison

PLAINTIFFS' EXHIBIT 24

Dave Wasserman, @Redistrict, X (Dec. 17, 2021, 10:31 AM), available at <https://twitter.com/Redistrict/status/1471880710097096710>.



Dave Wasserman
@Redistrict

New Mexico becomes the 20th state to approve a new congressional map, and it's probably the most optimal Dem gerrymander yet (maybe a tie w/ Oregon).



Greg Giroux @greggiroux · Dec 17, 2021

New Mexico Governor Michelle Lujan Grisham (D) signed into law a Democratic congressional map that converts Republican Rep. Yvette Herrell's southern 2nd District from Trump +12 to Biden +6 by adding D-leaning west Albuquerque and removing parts of R-heavy southeast NM. #nm02

December 17, 2021

Gov. Lujan Grisham signs new Congressional map approved by N.M. Legislature

SANTA FE — Gov. Michelle Lujan Grisham on Friday signed legislation that updates the boundaries of New Mexico's three Congressional districts based on 2020 Census data.

The New Mexico Legislature crafted and approved the new state's Congressional map.

According to the New Mexico House of Representatives, the map is a "nobody's parent's reflection" of what was called the "People's Map," produced by an independent Citizens Redistricting Committee.

"The people's elected representatives in the New Mexico Legislature have spoken with respect to data-driven and representative new Congressional boundaries," said Gov. Lujan Grisham. "It is our duty to verify the will of the majority here, which I believe has established a reasonable baseline for competitive federal elections, in which no one party or candidate may claim any undue advantage. New Mexico is a vast and diverse state, with both rural and urban communities and interests that span the spectrum politically and economically. We must honor the ideals of American democracy by doing everything we can to ensure a level playing field, reflecting what is unique about New Mexico, so which those good faith interests may compete for political representation."

The Congressional map was sponsored by Rep. Georgene Lopez, Sen. Joseph Cervantes and Sen. Darrel Ivy-Stein.

The governor also signed House Bill 3, updating the districts of the state Public Education Commission.

###

10:31 AM · Dec 17, 2021

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PLAINTIFFS' EXHIBIT 25

STATE OF NEW MEXICO
COUNTY OF LEA
FOURTH JUDICIAL DISTRICT COURT
No. D-506-CV-2022-00041, JUDGE VAN SOLEN
REPUBLICAN PARTY OF NEW MEXICO;
DAVID GALLEGOS; TIMOTHY JENNINGS;
DINAH VARGAS; MANUEL GONZALES, JR.;
BOBBY and DEANN KIMBRO, and PEARL GARCIA,

Plaintiffs,

-vs-

MAGGIE TOULOUSE OLIVER, in her official capacity as
New Mexico Secretary of State; MICHELLE LUJAN
GRISHAM, in her official capacity as Governor of New
Mexico; HOWIE MORALES, in his official capacity as
New Mexico Lieutenant Governor and President of the
New Mexico Senate; MIMI STEWART, in her official
capacity as President Pro Tempore of the New Mexico
Senate, and JAVIER MARTINEZ, in his official
capacity as Speaker of the New Mexico House of
Representatives,

Defendants.

VIDEO DEPOSITION OF BRIAN SANDEROFF
September 11, 2023
10:02 a.m. to 12:22 p.m.
Via Zoom Videoconference

PURSUANT TO THE NEW MEXICO RULES OF CIVIL

PROCEDURE, this deposition was:

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8 Also Present: Charlene Sanchez, videographer

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1 THE VIDEOGRAPHER: Good morning. Today is
2 September 11th, 2023. The time is 10:02. My name
3 is Charlene Sanchez, a certified video specialist
4 with Trattel Court Reporting & Videography in
5 Albuquerque, New Mexico.

6 We are here for the deposition of Brian
7 Sanderoff in the case of the Republican Party of New
8 Mexico, et al., versus Maggie Toulouse Oliver, et
9 al.

10 Would counsel please state their
11 appearances for the record and stipulate that the
12 court reporter will be swearing in remotely.

13 MS. DiRago: Yes. My name is Molly DiRago
14 from Troutman Pepper Hamilton Sanders, LLP. I
15 represent the individual plaintiffs in this case,
16 and I do stipulate that you may swear the witness in
17 remotely.

18 MS. SANCHEZ: Good morning. This is Sara
19 Sanchez and I'm here with Luis Stelzner. We
20 represent the legislative defendants, and we do so
21 stipulate. And also present is our co-counsel, Rich
22 Olson. Thank you.

23 MR. DUFFY: This is Kyle Duffy here on
24 behalf of Governor Michelle Lujan Grisham and
25 Lieutenant Governor Howie Morales, and we do so

1 stipulate.

2 MS. DiRago: Carter, do you want to put
3 appearance as well? No?

4 MR. HARRISON: Sure. Carter Harrison,
5 here for all plaintiffs. I'm also okay with
6 whatever the exact parameters of that stipulation
7 were. Thanks, much.

8 BRIAN SANDEROFF,
9 having been first duly sworn, testified as follows:

10 EXAMINATION

11 BY MS. DIRAGO:

12 Q. Okay, Mr. Sanderoff. My name is Molly
13 DiRago, as I just mentioned on the record when
14 stating my appearance, and I represent some of the
15 plaintiffs here in this case. We've never met, but
16 how are you?

17 A. **Fine. How are you today?**

18 Q. Good. So why don't you just state your
19 name and address for the record before we get going.

20 A. **Sure. Brian Sanderoff. 5140 San
21 Francisco Road, Northeast, Albuquerque 87109.**

22 Q. Have you ever been deposed before?

23 A. **Yes.**

24 Q. I figured. How many times, would you say?

25 A. **Forty.**

1 Q. Oh, wow. Okay. So then I don't need to
2 go into all of the instructions about, you know,
3 giving a verbal answer. I assume you know all that,
4 you know the drill. But I do want to let you know
5 that if you don't understand a question that I ask,
6 just let me know and I'll try to rephrase it. If
7 you do answer the question, though, I'll assume that
8 you understood it; is that fair?

9 A. Yes.

10 Q. Okay. If you want to take a break, just
11 let me know. I like to take breaks so that will
12 always be fine with me. And I was having some
13 technical issues just a little bit when I was trying
14 to sign in. So if, for some reason, I disappear or
15 you can't hear me because my sound goes off or
16 whatever, just let me know, please.

17 A. Okay.

18 Q. Do you have any documents with you today?

19 A. Yes. Yes.

20 Q. What documents do you have?

21 A. My expert report.

22 Q. Is that it?

23 A. Yes.

24 Q. Okay. And your expert report does go over
25 the degrees that you've received. So I'm not going

1 to go into that unless something has changed with
2 your educational background since you wrote the
3 report.

4 **A. Correct.**

5 Q. And who is your employer?

6 **A. Research & Polling, Incorporated.**

7 Q. Can I call that RPI?

8 **A. Yes.**

9 Q. What does RPI do?

10 **A. Research & Polling, Incorporated, is a**
11 **market research, public opinion, public policy,**
12 **demographic analysis corporation based in**
13 **Albuquerque, New Mexico.**

14 Q. What kind of services does RPI provide?

15 **A. Our primary -- well, we have different**
16 **areas of specialization, but on the quantitative**
17 **side public opinion polling, public policy, market**
18 **research. On the qualitative side, we do a lot of**
19 **focus groups, market research, image -- corporate**
20 **image work. And then on the demographic side, we**
21 **specialize in redistricting every 10 years. We**
22 **assist government entities, state, local, hospital**
23 **boards, water boards, school boards, cities,**
24 **counties, and the like.**

25 Q. So does RPI ever assess maps for evidence

1 of gerrymandering?

2 **A. Not that I recall, no. Did you say**
3 **gerrymandering?**

4 Q. Yes.

5 **A. Just gerrymandering in general?**

6 Q. Yes.

7 **A. Well, we've been involved in situations**
8 **with racial gerrymandering.**

9 Q. Okay, but not partisan gerrymandering?

10 **A. No.**

11 Q. Have you ever provided analysis about
12 whether a map has been partisan gerrymandered?

13 **A. No, not to my recollection.**

14 Q. Does RPI evaluate maps for political
15 competitiveness?

16 **A. Yes.**

17 Q. And that's under the demographic services
18 that you were speaking about earlier?

19 **A. Typically for redistricting where one has**
20 **a partisan performance index one could look at**
21 **competitiveness. We're not political consultants.**
22 **We don't work for the Democratic Party or the**
23 **Republican Party or candidates any longer. We**
24 **haven't for many, many years. So competitiveness**
25 **probably more from the perspective of redistricting**

1 **than being -- yeah.**

2 Q. So how does RPI typically use
3 competitiveness for the purpose of redistricting?

4 **A. Well, we have, over the years, developed a**
5 **partisan performance index that averages all of the**
6 **statewide races over a particular period of time to**
7 **give an indication of how an average Democrat or an**
8 **average Republican statewide might perform.**

9 Q. Okay. What is your position at RPI?

10 **A. President.**

11 Q. Were you a founder of RPI?

12 **A. Yes.**

13 Q. So what are your duties, sort of on a
14 day-to-day basis, at RPI, as president?

15 **A. Well, as president, I am involved in the**
16 **administrative side, of course, as well, working**
17 **with personnel and employees. But beyond that, I**
18 **do -- I'm very active in the actual work that we do.**
19 **We have lots of skilled individuals in their areas**
20 **of specialization of GIS and geography and**
21 **demography and political science and computers and**
22 **the like. And then I oversee them in the course of**
23 **their work.**

24 Q. So I think I asked you this about RPI, but
25 I'd like to ask of you: Have you ever provided an

1 opinion about whether a map -- about the political
2 competitiveness of a map before?

3 MS. SANCHEZ: Object to the form.

4 MS. DiRago: Do you want me to rephrase
5 that?

6 MS. SANCHEZ: It's up -- Brian, if you
7 understand the question, you may answer it. Or you
8 can ask for --

9 **A. Well, I'll answer it to how I understood**
10 **it, which was: I mean, during the redistricting of**
11 **past decades where New Mexico's legislative**
12 **districts particularly were contested in court**
13 **in 2001 and 2011, there was a lot of testimony just**
14 **about the performance of districts. So to the**
15 **extent that one is looking at a district in**
16 **litigation, whether the district -- the state**
17 **legislative district is 52 percent Democrat or**
18 **53 percent and so on, there's a lot of talk about**
19 **those things.**

20 Q. (By Ms. DiRago) But you've never given an
21 opinion -- sorry. Let me start over.

22 Have you ever assessed a map for looking
23 for political competitiveness?

24 MS. SANCHEZ: Object to form.

25 **A. In the context of saying to a judge, "This**

1 **map is or is not competitive," no. To the extent of**
2 **reviewing partisan performance indices to determine**
3 **whether performance increases or decreases over**
4 **time, yes.**

5 Q. (By Ms. DiRago) Okay. Your expert opinion
6 in this case has to do with political
7 competitiveness, right?

8 A. **Correct.**

9 Q. Have you ever rendered an expert opinion
10 based on political competitiveness before?

11 A. **I would say the same answers that I've**
12 **already given. I think I heard the same question,**
13 **unless I missed something.**

14 Q. Okay. So your answer is: Not
15 specifically political competitiveness, but you
16 think it involves political competitiveness to
17 discuss the partisan index of a map?

18 A. **Yes. Ten years ago, the Supreme Court on**
19 **remand asked the district judge to change the**
20 **boundaries of one of the legislative districts to a**
21 **certain level of competitiveness and we were -- we**
22 **performed the duties on behalf of the district judge**
23 **to make that district 50.0 percent Democratic to**
24 **50.0 percent Republican. So in that sense of**
25 **competitiveness, we've worked, but it wasn't to form**

1 **an opinion formally on whether a map is or is not**
2 **competitive.**

3 Q. That makes sense. Thank you. Was that
4 the Egolf case?

5 A. Yes.

6 Q. I want to go into that a little bit later.
7 You know, I'm going to share your report. I know
8 you have it in front of you. You can look in front
9 of you or look at my screen, it's up to you, or
10 both. So this is your expert report; is that right?

11 A. Correct.

12 Q. And I will mark this as Exhibit 1 to your
13 deposition.

14 (Exhibit No. 1 marked.)

15 Q. And I'm going to go to the bottom of page
16 2. You talk about, at the very bottom here,
17 technical consulting services for redistricting.
18 What does that mean to you?

19 A. Okay. So you're reading in the context of
20 **"Research & Polling has contracted with New Mexico**
21 **legislature to provide technical consulting services**
22 **for redistricting,"** okay. So for the legislature,
23 **initially we start out with working with the Census**
24 **Bureau to make sure that there is signed census**
25 **block boundaries conformed to New Mexico's precinct**

1 **boundaries. Since precincts are the building blocks**
2 **for redistricting, we must get accurate**
3 **precinct-level population from the Census Bureau.**

4 **So we have to make sure that New Mexico's**
5 **precinct boundaries overlap the census block**
6 **boundaries. So on behalf of the legislature, we**
7 **work with the county commissions, who are the**
8 **owners, if you will, of the precincts, to split**
9 **precincts that were too large to adjust their**
10 **boundaries to census boundaries so that the**
11 **legislature would have accurate building block**
12 **population data.**

13 **We then created the technology for the**
14 **legislature to use to district. Software, hardware,**
15 **GIS. We took all the election results for the prior**
16 **decade and conformed those election results to the**
17 **new precinct boundaries and created a performance**
18 **index that everyone can use for relative comparison.**
19 **We honored the requests of legislators who might**
20 **want a particular plan drawn for the House or the**
21 **Senate or Congress and they would request that a**
22 **particular plan be drawn and we would receive that**
23 **request through the Legislative Council Service and**
24 **we would attempt to develop a plan that met the**
25 **legislators' requests.**

1 **And we -- anyone who wanted a plan**
2 **introduced as a bill had to go through Research &**
3 **Polling and have that plan processed. We would make**
4 **the maps. We would run the statistics on the**
5 **population and the percentage deviations, the**
6 **partisan performance index, make sure that their**
7 **map's not missing precincts. And so we were really**
8 **mechanics. We're not playing a political role. We**
9 **worked for everyone equally in honoring requests and**
10 **answering questions along the way.**

11 Q. Okay. That's helpful. So can we skip
12 ahead then to your work for the CRC.

13 A. Okay.

14 Q. I think that's page 5.

15 A. Okay. So initially we were going to work
16 for the legislature, then the legislature passed a
17 law creating the CRC.

18 Q. Okay.

19 A. And so then the question was: Who's going
20 to staff the process for the CRC? And so the
21 logical group, government officials concluded, would
22 be Research & Polling. So we entered into a
23 memorandum of understanding with the Census and
24 Redistricting Committee to staff their process. And
25 during that time we would no longer staff the

1 **process of legislature, because we couldn't have --**
2 **couldn't handle both at the same time. So we**
3 **stopped work for the legislature and took on the**
4 **staff role for the Citizen Redistricting Committee.**

5 Q. Okay. So what did RPI do for CRC?

6 A. **The CRC was required to hold up to 12**
7 **meetings around the state, get public input in two**
8 **rounds: One, six or seven meetings on the front**
9 **end, six or seven meetings on the back end where the**
10 **CRC traveled the state and got public input. In the**
11 **first round, we showed the current plans that**
12 **existed for the different House, Senate, and**
13 **Congress and we asked people their input. What do**
14 **you think? What do you want the CRC to do?**

15 **Their mission was to recommend at least**
16 **three plans for House, Senate, and Congress to the**
17 **legislature. And so Research & Polling basically**
18 **staffed the process of these public meetings where**
19 **we presented to the public what the current plans**
20 **looked like. Then -- that was in August of 2021.**

21 **Then in September/October, there was a**
22 **second round of CRC meetings where we presented**
23 **ideas that we listened to the public and presented**
24 **plans for the consideration of the CRC. The CRC**
25 **also accepted a lot of plans on their public portal**

1 **where any group could put a plan -- suggest a plan**
2 **to the CRC. And those plans were in play as well**
3 **for the CRC's consideration.**

4 Q. Did RPI create any plans for the CRC?

5 A. Yes.

6 Q. How many?

7 A. And those are all on the CRC website.

8 **For -- well, should we talk a lot about the**
9 **legislature or just stick to Congress?**

10 Q. Well, we were talking about CRC, is
11 that --

12 A. Yeah, they did legislature, Congress,
13 public --

14 Q. Oh, okay. Let's stick to Congress. Thank
15 you.

16 A. Off the top of my head -- and this is all
17 on the CRC website, let's see, A, B, C, D, E, F,
18 G -- I think Research & Polling submitted maybe
19 seven plans to the CRC for their consideration that
20 we either drew or we saw on the portal in treating
21 plans that we wanted to bring to the attention of
22 the CRC for their consideration. And then the CRC
23 was open to look at other plans that were on the
24 portal for their consideration that we didn't
25 necessarily bring.

1 **It was quite a democratic process where**
2 **anybody could submit a plan on the portal. So some**
3 **were submitted by us, some were submitted by the**
4 **public.**

5 Q. Yeah.

6 **A. Some were drawn by us, but we even showed**
7 **some plans that weren't drawn by us just to show the**
8 **commission members other ideas.**

9 Q. Um-hmm. And was it plan H that actually
10 did come from a public organization?

11 **A. Yes. Plan H came from -- was placed on**
12 **the portal by another organization.**

13 Q. Can you remind me what organization that
14 was?

15 **A. Center for Civic Policy.**

16 Q. So did RPI create the plan A?

17 **A. Yes.**

18 Q. And that was adopted by the CRC, correct?

19 **A. That was one of them, yes. They adopted,**
20 **I think, three.**

21 Q. Okay. And plan H was another one that was
22 adopted, right?

23 **A. A was one of the three plans that were**
24 **adopted, correct.**

25 Q. And H -- sorry. I said H.

1 **A. Oh, I'm sorry. H was adopted by the CRC.**

2 Q. Okay. And then was it also plan E that
3 was adopted by the CRC?

4 **A. Yes. Plan E revised, I think more**
5 **precisely. Plan E revised was adopted by the CRC.**

6 Q. Did RPI create plan E, either in its
7 original or revised form?

8 **A. Research & Polling created concept E in**
9 **its original form.**

10 Q. Do you know how it was revised?

11 **A. Yes. And that's on the public portal and**
12 **was addressed in a public meeting. Justice Chavez,**
13 **former Chief Justice Chavez took concept E and he**
14 **said that he wanted to include the Mescalero Tribe**
15 **in two different congressional districts and the**
16 **Zuni Pueblo Tribe into two congressional districts**
17 **on. So the borders of concept E, half of Mescalero**
18 **was placed in one district and the other half in the**
19 **other district. Same with Zuni Pueblo, at the**
20 **request, evidently, of the tribes. And then just**
21 **minor changes just to account for the population**
22 **shifts.**

23 Q. Okay. So did you say that you attended
24 personally the public meetings that the CRC held and
25 that RPI staffed?

1 **A. Most of them.**

2 Q. Do you remember -- did anybody at those
3 public meetings ask to split up the oil wells in the
4 state?

5 **A. Do I remember if anyone asked to split up**
6 **the oil wells in the state? I do not recall**
7 **anyone -- I do not recall that.**

8 Q. Sorry. I have something on my glasses
9 that's making it hard to read.

10 So after the CRC work that RPI did, did
11 RPI assist in drawing SB-1?

12 **A. No.**

13 Q. Do you know if any RPI staffers had
14 communications with legislators, legislative staff
15 or consultants about SB-1 at all?

16 MS. SANCHEZ: I'm going to object and
17 caution the witness that if you can answer that
18 question without revealing legislative privilege or
19 Legislative Council Service confidential
20 information, you may, but I'm giving you that
21 caution.

22 **A. We, myself and my staff, were not involved**
23 **in any of the creation, design, analysis,**
24 **implementation of Senate Bill 1.**

25 Q. (By Ms. DiRago) Did RPI analyze SB-1 after

1 it was designed and created?

2 **A. We just put it through the same process**
3 **of, you know, once we received something from**
4 **Legislative Council Service, we process it, we run**
5 **the statistics, we make the maps, but -- so just in**
6 **our normal task, mechanical task of every bill that**
7 **was potentially going to be introduced had to go**
8 **through a process that I just explained and be**
9 **drafted by Legislative Council Service. So just**
10 **processing.**

11 Q. Okay. I am going to move to page 3 of
12 your expert report. You did mention the partisan
13 performance index that RPI creates, but I'd like to
14 talk a little bit more about that.

15 **A. Okay.**

16 Q. So the bottom paragraph on page 3. And it
17 says, "As part of its consulting role in support of
18 statewide redistricting, RPI develops and updates a
19 partisan performance index that is used as the
20 official index for all the redistricting plans
21 prepared by the Legislature." And then the next
22 sentence is what I want to ask you about. It says,
23 "The partisan performance index is based on the
24 results of all statewide elections in New Mexico
25 over the previous decade (the partisan performance

1 index that was used for redistricting in 2021
2 included election results from 2012, 2014, 2016,
3 2018 and 2020), except any races in which the margin
4 of victory was 20 points or greater."

5 So I want to sort of unpack this sentence.
6 First, can you tell me all of the races since 2012
7 in which the margin of victory was 20 points or
8 greater?

9 **A. Three.**

10 Q. And what were those?

11 **A. Attorney General. Secretary of State.**

12 **Off the top of my head -- I'm thinking of the third.**

13 **It'll come to me.**

14 Q. Okay. While you're thinking, what year
15 was the attorney general race that you're thinking
16 of?

17 **A. 2018.**

18 Q. And what year was that Secretary of State
19 race that you're thinking of?

20 **A. 2018.**

21 Q. Is the third race you're thinking of also
22 in 2018?

23 **A. Yes.**

24 Q. But you can't remember which one was that?

25 **A. Not off the top of my head, but it might**

1 **come to me.**

2 Q. Okay. If it comes to you, let me know.
3 In all of the three races that we're thinking of
4 here that were 20 points or greater, did a Democrat
5 win?

6 A. **Yes.**

7 Q. So there were no races since 2012 in New
8 Mexico where a Republican candidate won by 20 points
9 or more?

10 A. **In races where there was a Democrat and a
11 Republican in the race, yes.**

12 Q. Okay. Of course.

13 A. **Sometimes we have Libertarians or
14 write-ins and we just didn't include any of that, so
15 yes.**

16 Q. Okay. Well, so the only races that you
17 exclude from your partisan index are races where a
18 Democrat won, right?

19 A. **Correct.**

20 Q. So your partisan index doesn't really take
21 into consideration unique candidate considerations,
22 does it?

23 A. **I think it does.**

24 Q. How does it?

25 A. **Well, when you say "unique candidate**

1 **considerations," could you clarify what you mean by**
2 **that? Maybe I misunderstood that.**

3 Q. Well, and maybe I'm misunderstanding you,
4 but it seems to me that it's based solely on
5 statistics, but not on who the particular candidate
6 was during a particular race --

7 **A. That is correct.**

8 Q. -- is that correct?

9 **A. That is correct. It's based on the**
10 **election returns.**

11 Q. So the partisan index doesn't take into
12 account what's going on nationally either, does it?

13 **A. Only to the extent that some of the races**
14 **are, you know, federal races, like president and**
15 **U.S. Senate. And of course, federal issues that are**
16 **involved in presidential and senate races, but the**
17 **election returns are only for the State of New**
18 **Mexico.**

19 Q. Do you study national election trends?

20 **A. I keep up with it.**

21 Q. Do you know how Republicans did nationally
22 in 2008?

23 **A. 2008 would be a presidential year. And**
24 **that would be -- the Democrat won for president and**
25 **so what else can I say? Yes, that was a Barack**

1 **Obama year and Barack Obama won nationally and in**
2 **New Mexico.**

3 Q. Beyond presidential -- beyond Barack Obama
4 winning, do you know how the Republicans did, like
5 congressionally nationally?

6 A. **Nationally in 2008? They would have lost**
7 **some seats, congressional seats. I don't know the**
8 **number off the top of my head.**

9 Q. What about 2018? Do you know the number
10 off the top of your head?

11 A. **I don't know the number off the top of my**
12 **head.**

13 Q. Do you know how Republicans did generally
14 nationally in 2018?

15 A. **2018 was -- let's see. That was a midterm**
16 **election. Democrats did well in 2018.**

17 Q. And Republicans did poorly?

18 A. **Well, they did less well. They did --**
19 **yeah, Democrats did well.**

20 Q. Okay. What about the trend in the races
21 for 2022, the national trend? Have you caught up
22 with that?

23 A. **The national trend in 2022, the**
24 **Republicans were very hopeful it would be a solid**
25 **year, because it was a midterm election for Joe**

1 **Biden and oftentimes in midterm elections the party**
2 **not in the White House gains. So I would say that**
3 **the Republicans were very disappointed in what**
4 **happened in the state -- the U.S. Senate. And they**
5 **did take over in the House, but not by the kind of**
6 **margins they were hoping.**

7 Q. So generally, has the political landscape
8 of New Mexico changed much since 2012?

9 A. **New Mexico has generally trended more**
10 **blue. It's a bit more of a polarization where in**
11 **some cities New Mexico's trended more blue and some**
12 **rural areas New Mexico's trended more red. You**
13 **know, the polarization.**

14 Q. Um-hmm. So would you say Albuquerque has
15 trended blue?

16 A. **Albuquerque has trended more blue over**
17 **time.**

18 Q. Has it changed a lot since 2012?

19 A. **It varies. You know, you still have to**
20 **look at every year in a vacuum. Of course averages**
21 **are great, partisan performance indexes are great,**
22 **but you still have trends that come and go. But**
23 **generally, Albuquerque -- I don't want to put a**
24 **number on it, but it has trended more blue.**

25 Q. Okay. That's fair. What about the

1 southeast corner of New Mexico? How has that
2 trended since 2012?

3 **A. I think, as mentioned earlier, this is**
4 **polarization in New Mexico as well as other places.**
5 **So I think that Southeast New Mexico continues to**
6 **trend more red.**

7 Q. So what I'm wondering -- and hopefully you
8 can explain this to me -- if you're using election
9 results from races, like from 2012 and 2014 that
10 were, you know, two years -- I'm sorry, ten years
11 ago, and if those regions are trending differently,
12 is that going to affect the partisan index that you
13 use?

14 **A. Well, of course, that is what we use for**
15 **districting. That was the most recent available**
16 **data at that time. At the time where redistricting**
17 **was done, the 2022 election had not occurred yet.**
18 **So we used the most current information. I am a big**
19 **believer in having lots of races and letting the**
20 **vicissitudes of politics equalize themselves out.**

21 **In any given year, in any given race**
22 **regionalism comes into play where a candidate lives**
23 **or doesn't live. So the more races you include, the**
24 **more you're going to equalize or flatten out any**
25 **particular oddities. In any given decade, there's**

1 **going to be years where Republicans do well,**
2 **Democrats do well. Something could change tomorrow**
3 **in Albuquerque and the Republicans could fare better**
4 **despite the way the trends are moving. So I'm a**
5 **believer in broad-based information and I've seen**
6 **trends come and go. What's going to happen in 2024?**
7 **We don't know. Maybe it'll move back in a different**
8 **direction and so we have to be cautious when it**
9 **comes to that.**

10 Q. But isn't it true that since 2012,
11 Albuquerque, for example, has become more Democrat?

12 **A. Albuquerque has -- as stated, yeah, it's**
13 **more blue than it used to be, uh-huh.**

14 Q. Okay. So by including a race such as
15 2012, which is ten years ago, in the partisan index,
16 that's going to make Albuquerque look more
17 Republican than it actually is today, right?

18 **A. As to -- one would -- let's see, 2012.**
19 **'18. So much of it would depend on which races were**
20 **in there, how many races there were. I just want**
21 **to -- 2020 is a Constitutional year. And so we'd**
22 **have to look a little deeper into how many races**
23 **were included and whether it would really -- how**
24 **much it would really affect the averages.**

25 Q. Okay.

1 **A. It may or may not affect the averages,**
2 **depending upon, you know, what the performance was**
3 **of the individual candidates that year and so I'd**
4 **have to look deeper.**

5 Q. If I use the term "DPI," would you know
6 what that means?

7 **A. DPI?**

8 Q. Yes.

9 **A. D, as in dog?**

10 Q. Yes.

11 **A. Probably Democrat Performance Index,**
12 **partisan index.**

13 Q. And what does that mean?

14 **A. I would guess that it would be some sort**
15 **of index that averaged election returns. People use**
16 **different words or different terms or acronyms. I'm**
17 **just -- I don't know which one you're referring to,**
18 **but that's -- if it's a Democratic Partisan Index,**
19 **it would be an index of election returns, average of**
20 **particular races.**

21 Q. Of how many votes went for the Democrats?

22 **A. I'm sorry?**

23 Q. And is it measuring how many votes went
24 for the Democrats?

25 **A. Well, you're asking me about something**

1 **that I'm not really sure what you're referring to.**

2 Q. Okay, that's fair. Then, yeah, that's
3 fine. I thought you would know what DPI meant from
4 your experience.

5 **A. Yeah, I know it is Democratic Partisan**
6 **Index, which would give you the election return**
7 **average for both the Democrats and the Republicans.**

8 Q. Okay. All right. So you mentioned
9 already a couple of cases in which you were -- at
10 least one case in which you were qualified as an
11 expert, but on page 4 of your report, you describe
12 two of those cases. So I just wanted to talk a
13 little bit more about those. And the first you
14 write about is the Jepsen case.

15 **A. Right.**

16 Q. And I don't know if you were referring to
17 this earlier. So can you tell me what opinions you
18 rendered in the Jepsen case?

19 **A. I'm basing this now on recollection.**

20 Q. Okay.

21 **A. So when it came to Congress, which you're**
22 **sounding like you want me to focus more on than the**
23 **legislature.**

24 Q. Yeah.

25 **A. So at 2001 -- so the legislature and the**

1 **governor were at an impasse, they kept on passing**
2 **and vetoing plans, so there was no congressional map**
3 **that was being critiqued or that passed the state**
4 **legislature and signed by the governor in 2001. And**
5 **so the judge decided on his own that he was going to**
6 **adopt a congressional plan that was called the least**
7 **change plan, the plan that made the smallest**
8 **boundary shifts to account for population changes**
9 **and that the judge would choose the plan that**
10 **changed things the least.**

11 **And if my memory holds, different parties**
12 **suggested plans, but all of them were minor**
13 **variations because the judge had already said he was**
14 **going to choose a plan that made the most minor of**
15 **boundary shifts. So I don't think it was that**
16 **contentious, different people submitted plans, and**
17 **the judge chose a least-change plan.**

18 Q. And so what was your opinion that you
19 rendered?

20 A. **I don't recall even giving an opinion on**
21 **that. I think -- I think the different parties**
22 **pitched their plans to the judge, my recollection.**

23 Q. Okay. What services did you offer, then,
24 in that case?

25 A. **We, both in 2001 and particularly**

1 **in 2011 -- well, we would simply process plans. We**
2 **were not forming opinions. On Congress, if someone**
3 **wanted to submit a plan, we'd process it to make**
4 **sure they included their precincts and ran the**
5 **statistics on it, but we didn't play a big role.**

6 Q. Did you write an expert report for either
7 Jepsen or Egolf?

8 A. **If we did, it would have been on the**
9 **legislature, not on Congress, to my recollection.**

10 Q. So who were you hired by in the Jepsen
11 case?

12 A. **Same situation as this. We were working**
13 **for the legislature. In 2001 and 2011, we processed**
14 **the plans during the sessions, just like we did this**
15 **time and so we were there for staff support for the**
16 **court case as well.**

17 Q. Well, in this case, you were hired by the
18 defendants, correct?

19 A. **Well, yeah. I view it as just continuing**
20 **our work for the legislature, yes. So it was the**
21 **same capacity. Although, in 2011, the Supreme**
22 **Court, on remand, suggested to the judge that we**
23 **assist him and all the parties agreed to that,**
24 **Democrats, Republicans, Native Americans, Hispanic**
25 **groups, they all agreed to allow us to assist the**

1 **judge in accomplishing the changes that the Supreme**
2 **Court required of the district judge.**

3 Q. So in Jepsen, when you were hired as an
4 expert, was it -- you're saying it was just for the
5 legislature, generally?

6 A. **Again, this is a long time ago.**

7 Q. Um-hmm.

8 A. **Being that I recall the judge, in both**
9 **2001 and 2011, adopting a least-change plan, you**
10 **know, that just adjusted the boundaries. In 2001,**
11 **we were adjusting the congressional boundaries based**
12 **on 1991. The judge said that 1991 was the last**
13 **expression of legislative and governor intent, so he**
14 **was not going to decide himself what a good plan was**
15 **for Congress. He was just going to make the most**
16 **minor of boundary adjustments. That happened in**
17 **both the Jepsen and the Egolf cases where Congress**
18 **just -- to my recollection, was just less**
19 **controversial because of the least-change plans that**
20 **were submitted by the parties and the judge chose**
21 **the one he liked.**

22 Q. Okay. So in Jepsen, did you offer any
23 opinions about whether any of the maps were
24 gerrymandered?

25 A. **For Congress, no.**

1 Q. But for the legislature, you did.

2 A. **I don't think that for Congress -- for the**
3 **legislature, no. We didn't look at whether they**
4 **were gerrymandered.**

5 Q. What did you look at?

6 A. **We may have testified about the merits of**
7 **the plans. So every attorney for all the different**
8 **parties might, you know, ask some statistical**
9 **question about, you know, population or something in**
10 **this plan versus that plan. So we were speaking to**
11 **the merits of the plans, but I don't remember**
12 **partisan gerrymandering being an issue. It was a**
13 **matter of different parties submitting a plan and**
14 **people pitching their plan.**

15 Q. Okay. Was that the same in the Egolf
16 case?

17 A. **Yes.**

18 Q. So you didn't render an opinion about
19 whether any of the maps were gerrymandered in the
20 Egolf case?

21 A. **Not to my recollection. You know, some**
22 **race issues may have come up, but no.**

23 Q. Have you ever been excluded as a witness
24 in a case?

25 A. **No. I assume I know what you mean by**

1 **"excluded." Someone tried to stop me from being a**
2 **witness?**

3 Q. Yes. Has a judge ever said you're not
4 qualified to be an expert?

5 A. No.

6 Q. I didn't think so, but I had to ask.
7 Okay. I'm going to go on to your scope of
8 engagement. Are you testifying today pursuant to an
9 agreement?

10 A. An agreement with -- I'm not sure I
11 understand what you're asking.

12 Q. Anyone. An agreement with anyone. I
13 would guess defendants' counsel, but you can tell me
14 that.

15 A. Yes. Well, yes. I mean, I think we are
16 being paid for by the Legislative Council Service
17 and are working with their attorneys.

18 Q. When you say "we," do you mean that RPI is
19 being paid and not you, personally?

20 A. Correct.

21 Q. So is RPI's payment tied in any way to the
22 ultimate outcome in this case?

23 A. No.

24 Q. Is RPI's payment tied in any way to your
25 specific opinion rendered in this case?

1 **A. No.**

2 Q. Do you expect to testify at the
3 evidentiary hearing in this case?

4 **A. I think it's likely. I don't know**
5 **exactly.**

6 Q. Okay. And I'm going to look now at page 5
7 of your report, the data and materials relied upon.

8 **A. Right.**

9 Q. Okay. I have a question that I'm confused
10 by. The third bullet says you relied on election
11 results for New Mexico congressional districts, 2002
12 through 2012. But I believe you said that your
13 performance index uses races starting at 2012. So I
14 wanted to know if that's a typo or if you looked at
15 races before 2012 in some other capacity.

16 **A. Okay. The partisan performance index is**
17 **from 2012 to 2020, as stated in the report. When I**
18 **was looking at election returns, I was only looking**
19 **at election returns for the individual congressional**
20 **races that occurred within the congressional**
21 **districts. So that had absolutely nothing to do**
22 **with the partisan performance index. In fact, the**
23 **partisan performance index doesn't even include**
24 **congressional races because they're not statewide.**
25 **So nobody includes those in their indices. So it's**

1 **not a typo, it's simply the partisan performance**
2 **index was 2012 through 2020, all the statewide**
3 **racess. The election results were the indigenous**
4 **racess -- endogenous racess. The ones that just**
5 **occurred in the districts themselves.**

6 Q. Okay. And you also say that you relied on
7 Justice Elena Kagan's dissenting opinion in Rucho v.
8 Common Cause, right?

9 A. Yes.

10 Q. So in what way did you rely on that
11 opinion?

12 A. **Well, I read it as a layperson and so I**
13 **did read it.**

14 Q. Did you ask your lawyers what it meant?

15 A. **No. I noticed that in the New Mexico**
16 **Supreme Court order, they spoke of Kagan as one of**
17 **the considerations for the district judge. So I**
18 **thought it prudent for me to read it, too.**

19 Q. You did not look for signs of
20 gerrymandering in SB-1, did you?

21 A. **Could you repeat the question?**

22 Q. You did not look for signs of
23 gerrymandering in SB-1, did you?

24 A. **Correct.**

25 Q. And you don't provide an opinion in your

1 expert report about whether SB-1 was gerrymandered,
2 do you?

3 **A. Correct.**

4 Q. And you don't provide an opinion about
5 whether SB-1 shows signs of partisan bias, do you?

6 **A. I'm not sure what you mean by "partisan**
7 **bias." So probably -- could you tell me what you**
8 **mean by that?**

9 Q. Well, do you know what partisan bias -- I
10 mean, what do you take partisan bias to mean?

11 **A. Well, bias I think of in more of a -- I'm**
12 **not sure. Bias can mean many, many things. If**
13 **you're talking about variation in Democrat and**
14 **Republican performance, we do look at that.**

15 Q. So you have not looked at any indications
16 to show whether the map-drawers of SB-1 had partisan
17 bias, right?

18 **A. I see. I did not understand your**
19 **question.**

20 Q. Okay.

21 **A. So now that I understand your question:**
22 **No, we did not look at that.**

23 Q. So you were asked to evaluate the
24 political competitiveness of SB-1, right?

25 **A. Correct.**

1 Q. Is it your opinion that competitiveness is
2 a desirable goal in a map?

3 **A. Well, my personal philosophy is -- I'm not**
4 **sure how relevant that is, but yeah, I think**
5 **competitiveness is a good thing.**

6 Q. Is it more desirable than keeping
7 communities of interest together?

8 MS. SANCHEZ: Object to the form.
9 Foundation.

10 Q. (By Ms. DiRago) I guess -- sorry. If you
11 understand the question, you can answer.

12 **A. Yeah. Having made presentations hundreds**
13 **of times on that topic, you know, there are many,**
14 **many factors that come into play in the drawing of a**
15 **map and some of them have tension with each other.**
16 **You know, do you keep it population perfect to make**
17 **sure you don't violate the Voting Rights Act,**
18 **compactness, contiguity, competitiveness, you being**
19 **incumbents impaired? There's so many factors that**
20 **go into play. There's no such thing as a perfect**
21 **map. So the map-drawer has to decide which are**
22 **their highest priorities compared to others and try**
23 **to come up with a map that fits their particular**
24 **objective. So I would say there's always a**
25 **give-and-take on those matters.**

1 Q. Would you say the voters in the southeast
2 corner of New Mexico are a community of interest?

3 A. **The voters -- well, many of the voters,**
4 **not all of them, but many of the voters in Southeast**
5 **New Mexico have a common outlook. And if one**
6 **considered a common outlook a community of**
7 **interest -- communities of interest are in the eyes**
8 **of the beholder. And so there is a common outlook**
9 **among some people in Southeastern New Mexico. And**
10 **as to whether that's a community of interest is,**
11 **again, in the eyes of the beholder.**

12 Q. Are you aware that there are a lot of oil
13 wells in the southeast corner of New Mexico?

14 A. **Yes.**

15 Q. Do a lot of people who live in the
16 southeast corner of New Mexico work for the oil
17 wells in some form?

18 A. **Yes.**

19 Q. Do you think that's why they might have
20 similar outlooks, as you said?

21 MS. SANCHEZ: Object to the form.

22 A. **One of the reasons, yes.**

23 Q. (By Ms. DiRago) Did you look for signs of
24 vote dilution in SB-1?

25 A. **In our report, my report -- not vote**

1 **dilution, per se, but we do, you know, go over the**
2 **election returns within those districts.**

3 Q. So did you see signs of vote dilution?

4 **A. I was not studying vote dilution, per se,**
5 **in this report. But, again, we do go over election**
6 **returns as it relates to competitiveness.**

7 Q. So you don't have an opinion one way or
8 another if there's vote dilution existing in SB-1,
9 right?

10 **A. Well, when you say "vote dilution in**
11 **SB-1," do you mean in SB-1 or --**

12 Q. Anywhere in SB-1.

13 **A. Well, we see within our numbers that**
14 **Republican performance drops in Senate District 2.**
15 **But, again, the crux of our work was more on**
16 **competitiveness.**

17 Q. So do you know if there's vote dilution
18 under SB-1 in District 2?

19 **A. I know that again, due to our work, that**
20 **the percent Republican performance dropped in CD2.**

21 Q. So do you think there's vote dilution in
22 CD2?

23 **A. No, I'm not --**

24 MS. SANCHEZ: Objection. Form and
25 foundation.

1 **A. No, I'm not -- well, I'm not speaking to**
2 **dilution, per se. I'm not getting into the legal**
3 **issues about whether dilution goes to a point of**
4 **entrenchment or whether it's sufficient or not to**
5 **affect the outcome of an election. I focused more**
6 **on competitiveness.**

7 Q. (By Ms. DiRago) Mr. Sanderoff, you do give
8 an expert opinion about entrenchment, though.

9 **A. Yes, based on election returns.**

10 Q. So you looked only at election returns to
11 form your opinion on entrenchment?

12 **A. Well, within our report, we, I think,**
13 **restricted ourselves -- I restricted myself to the**
14 **actual endogenous races, the actual election returns**
15 **in the three congressional districts.**

16 Q. So to determine -- well, and let's say --
17 so your expert report says that SB-1 does not
18 entrench the Democratic Party in power. So that's
19 your ultimate conclusion of your report, correct?

20 **A. Correct. And that's based on the election**
21 **returns.**

22 Q. And do you still agree with that opinion
23 today?

24 **A. Yes.**

25 Q. So I'm sorry if you feel like I keep

1 asking this, but I don't feel like I've gotten,
2 like, a yes or no. In determining whether SB-1 does
3 not entrench the Democratic Party in power, did you
4 look for evidence of vote dilution?

5 **A. I looked at the election return and I saw**
6 **that under the new district boundaries, the Democrat**
7 **won the election by seven-tenths of 1 percentage**
8 **point. And to me that would not be consistent with**
9 **entrenchment where entrenchment would imply some**
10 **sort of long-term outcome, political outcome that**
11 **would be difficult to overturn.**

12 **My opinion, based on the election returns**
13 **of Gabe Vasquez winning by seven-tenths of**
14 **1 percent, that district -- the Democrats are not**
15 **entrenched in that district. It's a very**
16 **competitive race. The Republicans have a great**
17 **chance of winning in the future election.**

18 Q. I really don't want to put words in your
19 mouth, but that sounds like, no, you did not look
20 for evidence of vote dilution in forming that
21 opinion; is that right?

22 **A. That's correct.**

23 Q. Okay. And so you say that SB-1 does not
24 entrench the Democratic Party in power, because -- I
25 believe you said one reason at least is that it's

1 very competitive, but I want to get this right.

2 Sorry. So strike that.

3 So your expert opinion that SB-1 does not
4 entrench the Democratic Party in power is based, at
5 least in part, on the fact that D2 [sic] is
6 competitive now under SB-1; is that right?

7 **A. That is correct.**

8 Q. All right. And for that opinion that SB-1
9 does not entrench the Democratic Party in power, you
10 adopted the Oxford English definition of
11 "entrenched." Is that right?

12 **A. Yes.**

13 Q. Okay. And under SB-1, the partisan
14 performance measure of SD2 -- I'm sorry, CD2 is
15 53 percent Democrat and 47 percent Republican,
16 correct?

17 **A. Correct.**

18 Q. What was the partisan performance measure
19 of CD2 under the previous map?

20 **A. I don't recall off the top of my head.**

21 Q. Did you look at that in order to write
22 this report?

23 **A. No.**

24 Q. So it wasn't important for your analysis
25 to see how the districts changed under the previous

1 map to the current map?

2 **A. Well, we were focused on the issue of**
3 **competitiveness and whether or not the district, in**
4 **its current form, under its current boundaries is**
5 **competitive or not. We were not focused on voter**
6 **dilution issues.**

7 Q. Okay. So when you say the word
8 "competitive," your definition is that -- well, let
9 me ask you. What is your definition of competitive?

10 **A. Well, in this context it would be two bits**
11 **of evidence that we used. One was the actual**
12 **election returns under the new district in which**
13 **Vasquez won by seven-tenths of a point, which I**
14 **deemed as a very close race. And then the second**
15 **one was a Democratic Performance Index, which used**
16 **those same races that we've talked about already**
17 **that showed that over the course of the years, the**
18 **average statewide Democrat gets 53 percent, the**
19 **average statewide Republican gets 47 percentage.**

20 **So it was on those two data elements that**
21 **I formed the conclusion, both using a partisan index**
22 **and using the Vasquez race itself. And so yes. So**
23 **it turned out that the actual election derived even**
24 **a closer outcome than the performance index itself.**

25 Q. Okay. So I think what you said, like sort

1 of the second half of your answer, were you talking
2 about the New York [sic] map as a whole when you
3 said -- I think you said the 53-to-47 range?

4 **A. That would be within CD2.**

5 Q. Is that the range that CD2 is right now?

6 **A. I don't know. I mean, the only thing I**
7 **looked at was the election return. We have not**
8 **incorporated anything new. We're using all the data**
9 **from the time of redistricting, plus the '22**
10 **election returns.**

11 Q. Okay. Do you know the partisan
12 performance measure of the state as a whole?

13 **A. Under this index, I think it was 54.2.**

14 Q. And that's at DPI?

15 **A. That's the -- yes.**

16 Q. And so if you could just explain. So if
17 the DPI is 54.2 percent, what does that mean
18 exactly?

19 **A. It means that if you take the average of**
20 **all of the election returns for all of the races**
21 **from 2012 to 2020 that were run statewide and**
22 **exclude the three races a candidate won by more than**
23 **20 percent points and average them all together, the**
24 **average statewide Democrat gets that number.**

25 Q. Okay. I put your report back up on the

1 screen here and I'm looking at page 6. And you have
2 a sentence here that says, "Based on my experience,
3 political consultants consider a district to be
4 competitive if the gap between the average
5 Democratic and Republican performance falls within a
6 54 to 46 range." And I'd like to know, when you say
7 "based on my experience," what experience you're
8 talking about there.

9 **A. Forty years of working, looking at numbers**
10 **and talking to potential candidates and individuals.**
11 **You know, we stopped working for political**
12 **candidates decades ago, but we're constantly asked**
13 **our advice from people who want to -- are thinking**
14 **of running for office and they want to get a**
15 **realistic opinion on whether they stand a chance to**
16 **run or not. And so it's been my experience over the**
17 **years that people -- many people start with a 54/46**
18 **range, that any race of legislature, Congress, what**
19 **have you, where the Democrat or Republican, you**
20 **know, is within that eight-point range, they have a**
21 **chance of winning. It's a number that political**
22 **fund-raisers look at, too, to raise money.**

23 **But in the next paragraph I also say -- in**
24 **the next sentence, that other factors are taken into**
25 **account, you know, at that point, to determine**

1 **whether a race is competitive, such as the things**
2 **that I mentioned. So it's not a hard, fast, fixed**
3 **number. It's a good starting point.**

4 Q. Okay. So there's no research or studies
5 that you're using to determine those numbers, right?

6 **A. Just my experience, correct.**

7 Q. Do you know of any races in New Mexico
8 where a Republican won a 54 percent Democratic
9 district?

10 **A. I cannot think of one, but I would not --**
11 **one place where the partisan index has trouble is,**
12 **let's say, a legislator got caught DWI or got in**
13 **some legal trouble and still decides to run for**
14 **office, you know, sometimes you'll see a Republican**
15 **in a really strong Republican district lose, or vice**
16 **versa, because of some controversy. But holding**
17 **those examples aside, it would be a rare event.**

18 Q. Okay.

19 **A. If it happens, it's happening for some**
20 **special reason.**

21 Q. I understand. And of course, anything
22 could happen. So no one -- if you could guarantee
23 exactly what would happen in an election, you'd be a
24 very wealthy man.

25 **A. Right. Right.**

1 Q. Maybe you are already. I don't know. But
2 you understand my point.

3 A. **No such luck.**

4 Q. Okay. All right. So you agree that the
5 Democratic performance of CD2 has increased under
6 SB-1, right?

7 A. **Yes.**

8 Q. And the Republican performance of CD2 has
9 decreased under SB-1, right?

10 A. **Yes.**

11 Q. But CD2, under your analysis, is not safe,
12 correct?

13 A. **Correct.**

14 Q. And it's not safe because it doesn't
15 entrench the Democratic Party in power, right?

16 A. **Correct.**

17 Q. So what I'd like to know is: Is it your
18 opinion that the only way a party can entrench
19 themselves in power is by making all districts in
20 their state safe?

21 MS. SANCHEZ: Object to the form.
22 Foundation.

23 A. **I was referring just specifically to CD2,**
24 **that CD2 does not entrench the Democratic Party in**
25 **power. That was the focus of my statement.**

1 Q. (By Ms. DiRago) So does a district have to
2 be safe in order to entrench that party in power?

3 **A. Well, in that district, if that district**
4 **went from strong-leaning Republican to safe**
5 **Democrat, it might be entrenching the party in**
6 **power, but that's not what happens here. It just**
7 **goes to a very, very close race, both in terms of**
8 **the DPI and the actual election returns.**

9 Q. So in your opinion, is it even possible to
10 entrench the Democratic Party in power in New
11 Mexico?

12 MS. SANCHEZ: Object to the form.
13 Foundation.

14 **A. I'm not sure I understand your question.**

15 Q. (By Ms. DiRago) Well, I think you
16 understand the politics of the three different
17 districts, right?

18 **A. Right.**

19 Q. I mean, you discussed them in your report.
20 We don't have to go over them exactly, but given --
21 so I guess I'm just wondering, under New Mexico's
22 congressional map, do you think it's even possible
23 to entrench the Democratic Party in power in D2?

24 **A. I'm just thinking for a moment. It would**
25 **be -- it would be technically possible to further**

1 **increase the Democratic performance in CD2 even**
2 **beyond what it is under SB-1. If one shifted the**
3 **boundaries, you know, started going up the western**
4 **edge into some other blue counties, one could**
5 **increase the Democratic performance even more.**

6 Q. And if one did that, would it still --
7 well, how would -- if one did that, they would be
8 taking Democratic voters from another district; is
9 that right?

10 A. **Yes.**

11 Q. So is it possible to make D2 safe while
12 keeping the other two districts Democratic-leaning
13 in New Mexico?

14 A. **It would be possible. I'm not sure how**
15 **nice that map would look, but it would be possible.**

16 Q. So it probably would not create compact
17 districts? Is that what you're saying?

18 A. **I think that's fair to say, that, yeah,**
19 **you can increase the performance. The more you**
20 **increase the performance, the more you'd be adding**
21 **some other counties in that are on the periphery.**

22 Q. And that would decrease the Democratic
23 performance in another district, right?

24 A. **It would, sure.**

25 Q. So I do want to kind of delve into that a

1 little bit. So given the map that we have, three
2 congressional districts in New Mexico, how would you
3 create a gerrymander, you know, given the political
4 nature of those three district as you know them?

5 MS. SANCHEZ: Object to form and
6 foundation.

7 **A. So you're asking me how would one go about**
8 **increasing the performance further in CD2?**

9 Q. (By Ms. DiRago) Well, how would one go
10 about increasing the performance of Democrats across
11 the state, if they were drawing the congressional
12 map?

13 MS. SANCHEZ: Same objection.

14 **A. Well, as you noted, if you increase the**
15 **performance further. Democratic performance in CD2,**
16 **it'll be obviously taking it away from something**
17 **else. But other than that, I'm not sure I**
18 **understand your question.**

19 Q. (By Ms. DiRago) So if you increase the
20 Democratic performance in D2, you have to increase
21 the competitiveness in either one or both of D1 or
22 3, right?

23 **A. That's true.**

24 Q. And that's what happened with SB-1, right?

25 **A. Yeah. The impact of increasing the**

1 **Democratic performance of one district will**
2 **mathematically mean the performance will go down in**
3 **another district, that's right. Simple math.**

4 Q. Okay. What was the partisan performance
5 measure of D1 under the previous map, if you know
6 it?

7 A. **I don't recall off the top of my head.**

8 Q. And do you remember the performance
9 measure of D1 under SB-1?

10 A. **Not off the top of my head.**

11 Q. Okay. And same questions for D3.

12 A. **Right not -- I don't recall it off the top**
13 **of my head.**

14 Q. Okay. For either SB-1 or the previous
15 map, right?

16 A. **Right.**

17 Q. Okay.

18 MS. SANCHEZ: Hey, Molly.

19 MS. DIRAGO: Yeah. Do you need a break?

20 MS. SANCHEZ: We're been going about an
21 hour and a half. Can we take a break?

22 MS. DIRAGO: Yeah, I'm so sorry. I lost
23 track of time. Yes. Sara, do you want 10 or 15
24 minutes? We can go off the record first, sorry.

25 THE VIDEOGRAPHER: We're going off the

1 record. The time is 11:26.

2 (Recess from 11:26 a.m. to 11:39 a.m.)

3 THE VIDEOGRAPHER: We are back on the
4 record. The time is 11:39.

5 MS. DIRAGO: Thank you.

6 Q. (By Ms. DiRago) So Mr. Sanderoff, how many
7 times has -- strike that.

8 How many times were all three districts
9 won by a Democrat in New Mexico?

10 **A. Well, when I think of -- let's see.**
11 **In 2018 -- Xochitl would have been there -- 2018 to**
12 **2020 would be a time. Are we including Senate, too,**
13 **or just Congress?**

14 Q. Just Congress.

15 **A. And then obviously right now, 2023. So**
16 **2018 election, 2022 election. In '08, Teague won.**
17 **Probably would have been in '08 as well. I'd**
18 **double-check Albuquerque on that one, but I think**
19 **Heather Wilson was long gone. So off the top of my**
20 **head, those three years, I think, would be times**
21 **when -- and then you don't want me to go back to the**
22 **'70s and all that, do you?**

23 Q. No, you don't have to. For my
24 edification, when did New Mexico get three
25 districts?

1 **A. In 1982.**

2 Q. Okay.

3 **A. And so -- yeah, so we would have had Joe**
4 **Skeen for -- Joe Skeen was like a Steve Pearce, he**
5 **hung in there for about 20 years. So yeah, it's**
6 **probably those three election cycles. Because Skeen**
7 **would have been there so long that it would have**
8 **been hard to get all three.**

9 Q. Okay. And if I find one in, like 1983,
10 I'm not going to call you out on that.

11 **A. Right. Right.**

12 Q. Okay. So I know what happened in the 2022
13 election, but in the 2008 and 2018 election, the
14 Democrat that won D2, were they -- was that race
15 against an incumbent?

16 **A. No.**

17 Q. And that's for both 2008 and 2018?

18 **A. Correct.**

19 Q. But in 2022, the Democratic Party took --
20 sorry. In 2022, the Democratic candidate won the
21 race against a Republican incumbent in D2, right?

22 **A. Correct.**

23 Q. Incumbents are hard to beat, aren't they?

24 **A. Oftentimes, correct.**

25 Q. And incumbents enjoy an advantage at the

1 polls, right?

2 **A. Oftentimes. Again, we have these**
3 **exceptions where incumbents become unpopular, then**
4 **it could work against them. But I'd rather be an**
5 **incumbent than not.**

6 Q. Was Ms. Herrell unpopular?

7 **A. I have not seen any polls one way or the**
8 **other to measure her favorability, you know. So I**
9 **have no data on her favorability at the time of the**
10 **election.**

11 Q. So what do you make of that? That even
12 though she was an incumbent in 2022, she lost a seat
13 that you said is a toss-up? Do you really think it
14 was a toss-up if an incumbent was beat by a Democrat
15 in that district?

16 **A. I do. I do. I think, you know, she --**
17 **there's so many factors that enter into the process,**
18 **other than incumbency, as we talked about before.**
19 **You know, where you live within the district,**
20 **strengths and weakness. She was beat up pretty hard**
21 **in her race against Xochitl Torres Small, you know,**
22 **and some of those lingering effects, but -- you**
23 **know, her prior time when she lost. So, you know,**
24 **all these factors come into play.**

25 Q. Where does she live in the district?

1 **A. Yvette Herrell?**

2 Q. Yes.

3 **A. In Otero County, Alamogordo. At least**
4 **that's where she's primarily from, I assume.**

5 Q. Okay. Yeah. And what about the -- I
6 forget his name, but the person who beat her?

7 **A. Gabe Vasquez.**

8 Q. Yes.

9 **A. He's from Las Cruces.**

10 Q. So you do mention something in your expert
11 report about whether a candidate lives in Las Cruces
12 or Hobbs. Can you explain -- I'm not from New
13 Mexico, as you probably know, so can you explain
14 what you mean by that?

15 **A. I was just giving an example of two**
16 **cities.**

17 Q. Um-hmm.

18 **A. Steve Pearce was from Hobbs. I could just**
19 **as easily have said Alamogordo in there. I was just**
20 **naming two cities in the district, not giving it --**
21 **the primary point was that where you live could**
22 **affect the outcome of the election depending on lots**
23 **of factors.**

24 Q. Okay. So in what way? Like, how does it
25 matter where somebody lives?

1 **A. Well, I mean, Las Cruces is the**
2 **second-largest city in New Mexico. And so being an**
3 **incumbent from Las Cruces, as an example, Gabe**
4 **Vasquez, you know, he's a former city councilor, so**
5 **he's a strong candidate, you know. Alamogordo's a**
6 **relatively smaller place, you know, population-wise.**

7 Q. Where is it?

8 **A. It's across the mountains, Sacramento**
9 **Mountains from Las Cruces, but it's the beginning of**
10 **the conservative portion of the eastern half of the**
11 **region -- of the district.**

12 Q. So where does the conservative portion
13 begin?

14 **A. It begins in Alamogordo -- it begins where**
15 **Yvette Herrell is from, in Alamogordo, Otero County,**
16 **and then portions eastward.**

17 Q. Okay.

18 **A. There are also a few conservative counties**
19 **in the southwest quadrant, but...**

20 Q. So I'm going to show you a map that was an
21 exhibit to Mr. Brace's expert report. Have you read
22 his report?

23 **A. No.**

24 Q. So it's just -- really just so I
25 understand what you're saying, it's just -- he

1 purports -- and I don't know if you know this, but
2 he is an expert for the defendants as well as you.
3 And so he purports this to be the district map from
4 2011. And I've just sort of been using this for
5 reference for myself. So when you -- if you could
6 tell me, using this map, like where the conservative
7 portion begins, that would be helpful.

8 **A. Okay. So we see Doña Ana County, that's**
9 **got Las Cruces in it and that's where Vasquez lives**
10 **so we just spoke about it.**

11 Q. Okay. Thank you. That's helpful. Got
12 it.

13 **A. And then we see Otero County right next to**
14 **it. The biggest city in that is Alamogordo. That's**
15 **where Herrell lives.**

16 Q. Okay.

17 **A. So if you basically look at the counties**
18 **east of Otero and then north, Lincoln, DeBaca,**
19 **Roosevelt. I wouldn't include Guadalupe as a**
20 **conservative county, but yeah, basically yes.**

21 Q. And then you were saying some of the
22 southwest corner of New Mexico is also conservative?

23 **A. Catron is very conservative. And some of**
24 **the other ones are swing counties in the southwest.**
25 **Valencia is trending conservative, but not to the**

1 **degree of the others.**

2 Q. Thank you. Did you read Mr. Trende's
3 expert report?

4 A. No.

5 Q. Do you know what his conclusions are?

6 A. No.

7 Q. Did you read Dr. Chen's report?

8 A. No.

9 Q. Do you have any expert conclusions about
10 SB-1 that were not in your report?

11 A. No.

12 Q. Do you plan to do any more analysis on
13 SB-1?

14 A. **I do not plan on it. I have not been**
15 **asked and I do not plan on it.**

16 Q. Did you look at the efficiency gap for
17 this map, for SB-1?

18 A. No.

19 Q. Do you typically look at the efficiency
20 gap for plans when you're assessing them?

21 A. **Well, usually I'm not in the business of**
22 **assessing maps. So I know there's a lot of other**
23 **tests that are done out there by experts, but**
24 **that's -- typically, the role I play is more of what**
25 **I explained as staffing the processing of bills,**

1 **not -- typically not evaluating them. I'm not an**
2 **expert like those other people you mentioned who are**
3 **evaluating different plans. That's not what I do.**

4 Q. Yeah. Okay.

5 A. **Yeah.**

6 Q. Did you look at which voters -- sorry.
7 Did you look at which residents were moved out of
8 District 2 into the other districts --

9 A. **No.**

10 Q. -- under SB-1?

11 A. **No.**

12 Q. Sorry. I have a tickle in my throat.

13 So if I told you that Mr. Trende's expert
14 report says that 175,953 residents were moved out of
15 D2 under SB-1, would you have any reason to disagree
16 with that number?

17 A. **195,000?**

18 Q. 953.

19 A. **I would have no reason to agree or**
20 **disagree since I haven't done the math, but...**

21 Q. Do you remember the population of the
22 three districts after the census came out in 2020?

23 A. **I remember the deviations. You know, each**
24 **three congressional districts has a nice growth**
25 **center so they weren't off by that much, but I**

1 **remember the deviations, you know.**

2 Q. And what were they? Even if you just
3 approximate.

4 **A. I think minus 1.6 percentage points. And**
5 **the other two would add up to a plus of that**
6 **equivalence.**

7 Q. So the minus 1.6, that's for D2?

8 **A. You know off the top of my head, I don't**
9 **recall. It may have been a plus 1.6 or a minus 1.6.**
10 **So let me say I am not a hundred percent confident,**
11 **but that's in the ballpark.**

12 Q. Okay. I'm just reading through, I think
13 we're going to be done pretty soon. Oh, I did want
14 to ask you: You defined CD2 under the previous map
15 as a strong-leaning Republican district, correct?

16 (Mr. Williams has joined the Zoom.)

17 **A. Correct.**

18 Q. Is that based on any specific numbers in
19 your partisan metric --

20 **A. Yeah.**

21 Q. -- or what is it based on?

22 **A. Oh, based on the -- I described it as**
23 **strong-leaning Republican district under -- the old**
24 **boundaries you're talking about?**

25 Q. Yes.

1 **A. Yeah. I think based on the examples I was**
2 **given and that I gave in the report, you know, that**
3 **you know, holding aside partisan performance indexes**
4 **is nothing like looking at an actual -- the**
5 **endogenous races within a district and the fact**
6 **that -- and the reason I went back to 20 years was**
7 **because the district boundaries didn't change much**
8 **between 2001 and 2010, and then 2012 onward to 2020**
9 **the boundaries stayed pretty much the same. And in**
10 **circumstances where you had a powerful incumbent,**
11 **like Steve Pearce, he'd win by big margins. And**
12 **circumstances where twice he decided to run for**
13 **higher office and resigned his seat, the Democrats**
14 **won. And so I therefore concluded that it's not a**
15 **safe seat, it's not a guaranteed Republican seat.**
16 **It's a seat where the Democrats have an opportunity.**
17 **But at the same time I did say it's strong-leaning**
18 **Republican. It is. It was strong-leaning**
19 **Republican, but the Democrats have a shot and they**
20 **proved it in two circumstances where the incumbent**
21 **stepped aside.**

22 **Q. Okay. I know we just took a break, but if**
23 **you don't mind, I'm going to take just three minutes**
24 **and come back and I think I might be able to end.**

25 **THE WITNESS: Great.**

1 MS. DIRAGO: Okay.

2 THE VIDEOGRAPHER: We're going off the
3 record. The time is 11:57.

4 (Recess from 11:57 a.m. to 12:07 p.m.)

5 THE VIDEOGRAPHER: We're back on the
6 record. The time is 12:07.

7 Q. (By Ms. DiRago) Okay. So Mr. Sanderoff, I
8 do have a few more questions for you, but I am
9 nearing the end. So that's good. So do you know
10 who Mimi Stewart is?

11 A. **Yes.**

12 Q. Who is she?

13 A. **President Pro Tem of the Senate.**

14 Q. Oh, and I have a question: You mentioned
15 the CCP map quite a while ago. I think it was the
16 concept plan H; is that right?

17 A. **Correct.**

18 Q. Did you ever talk to anyone at the CCP
19 about that plan before or after they submitted it on
20 the portal?

21 A. **Could you repeat your question?**

22 Q. Yeah. So in reference to the concept plan
23 H, which I think you testified was submitted by the
24 CCP, did you ever talk to anyone at the CCP about
25 that map around the time when they submitted it to

1 the portal --

2 A. No.

3 Q. -- for the CRC?

4 A. **Not that I recall. I think -- not that I**
5 **recall. I recall speaking a lot about it in the**
6 **public meetings, but I don't recall speaking to them**
7 **about the map beforehand.**

8 Q. Did you speak to them about what -- you
9 know, some of the designs that they made, why they
10 made them, why they made those choices?

11 A. **No. I think that they spoke of their**
12 **reasons in their meetings. And then once the**
13 **commission considered that plan, I would bring it up**
14 **in public meetings to just explain to people what**
15 **the authors -- the description of the plan was, but**
16 **I don't remember any private conversations.**

17 Q. Have you ever been asked to spread apart
18 oil wells in a redistricting map before?

19 A. No.

20 Q. Have you ever heard of that being a goal
21 in redistricting?

22 A. **Have I heard of people talk about**
23 **spreading oil wells in redistricting? I haven't**
24 **heard that.**

25 Q. Okay. But oil wells are pretty important

1 in New Mexico, right?

2 A. Yes.

3 Q. It's an important industry?

4 A. Yes.

5 Q. So does it make sense to split the oil
6 wells among the districts?

7 MS. SANCHEZ: Object to the form.

8 A. **I guess -- I mean, it just depends on the**
9 **perspective of the author, whether you want to**
10 **concentrate all your power in one district or have**
11 **two voices. I've seen a lot of people try different**
12 **arguments of consolidating power or having two**
13 **voices and so...**

14 Q. (By Ms. DiRago) But you've never been
15 asked to do that before in any of the maps that
16 you've created?

17 A. No.

18 Q. Okay. So I want to go back to Mimi
19 Stewart. Did you talk to her about SB-1 at all?

20 MS. SANCHEZ: Object to the form and
21 assert the legislative privilege and the Legislative
22 Council Service confidentiality in statutes that's
23 been asserted in the pending motions. And I will
24 instruct the witness not to answer to reveal any
25 privileged or confidential communication with any

1 legislators.

2 Q. (By Ms. DiRago) Okay. Do you know if Mimi
3 Stewart uses your partisan index?

4 MS. SANCHEZ: I guess I'll just caution
5 that if you can answer that question without
6 revealing privileged or confidential communications,
7 you may answer it.

8 **A. On plans that were processed by Research &**
9 **Polling, whether authored by us or not, the**
10 **performance index would always be there on anybody's**
11 **maps. So if she was relying on maps that we**
12 **processed, she would see our performance index, but**
13 **if she was relying on -- legislators may have been**
14 **using other performance indexes and relying on ours**
15 **sometimes and sometimes not. So only if she was**
16 **looking at the plans that we processed.**

17 Q. (By Ms. DiRago) Okay. So I'm going to
18 show you what I'm going -- you know, I'm going to
19 actually -- I'm going to mark the map that I was
20 showing you, the 2011 map, as Exhibit B. And then
21 I'll mark this I'm about to show you as Exhibit C.
22 I don't know if we're doing numbers or letters, but
23 I hope you understand. And this is something we
24 received in discovery and what it purports to be are
25 texts between Mimi Stewart and someone at CCP.

1 (Exhibits No. 2 and 3 marked.)

2 Q. Let me try to make it just a little bit
3 bigger. So I was asking you about the performance
4 index for the districts after SB-1. And I believe
5 the only one that you remembered offhand was D2,
6 correct?

7 A. **Correct.**

8 Q. So in these texts -- let's see. So like
9 the seventh text on the right says, "We improved the
10 people's map and now have CD2 at 53 percent DPI."
11 Do you see that?

12 A. **Yes.**

13 Q. And so I know you didn't write this, but
14 what do you think DPI means here?

15 A. **I would guess Democratic Performance**
16 **Index, partisan index or performance. People use**
17 **different words.**

18 Q. Yeah, okay. But that would mean
19 53 percent of the residents are expected to vote for
20 Democrats?

21 MS. SANCHEZ: Object to form.

22 A. **Not residents, but voters.**

23 Q. (By Ms. DiRago) Okay.

24 A. **Well, let me restate that. What it means,**
25 **"We improved the people's map and now we have CD2 at**

1 **53 percent DPI." Let me just look at the one above**
2 **that. Well, whatever DP -- whatever DPI they're**
3 **using, whether it's Research & Polling's or their**
4 **own one, I don't know yet from this text, but maybe**
5 **I'm about to find out, but -- so whatever that**
6 **performance index is, it's showing that on average**
7 **the Democrat gets 53 percent and probably the**
8 **Republican gets 47 percent.**

9 Q. Okay. And I apologize. I should have let
10 you read the whole thing before asking you
11 questions. So why don't you go ahead and do that
12 now.

13 A. **Okay. So, yeah, it appears as if they**
14 **didn't have access to -- Research & Polling put our**
15 **partisan performance index on the legislative**
16 **website. Anybody, any consultant, could access it.**
17 **It was public information, but it went up at a**
18 **certain time period when we had it complete. So it**
19 **appears as if it wasn't accessible yet and they were**
20 **using the NCEC index.**

21 Q. What does that stand for? If you know.

22 A. **I've seen those acronyms a lot, but off**
23 **the top of my head, I'm not sure.**

24 Q. Okay.

25 A. **So it sounds like they're arguing over the**

1 **indexes.**

2 Q. Yeah. And you got a shout-out. It says
3 you know your history.

4 **A. Yeah. Okay. Yeah.**

5 Q. And it says, "Biden got 51 percent on our
6 map and MLG 53.7 percent." Any idea what MLG might
7 mean?

8 **A. Michelle Lujan Grisham.**

9 Q. And then she says, "Who takes the hit?
10 What's your map DPI for CD1 and CD3? There's only
11 so much DPI to go around, you know." Do you see
12 that?

13 **A. Yes.**

14 Q. What do you think she's referring to
15 there?

16 MS. SANCHEZ: Object to the form.
17 Foundation.

18 **A. How to allocate the Democratic performance**
19 **among the districts.**

20 Q. (By Ms. DiRago) And that's similar to the
21 concept that -- and sorry. Are you still reading?
22 I can't tell. Because if you are --

23 **A. No, I have stopped.**

24 Q. -- go ahead. Okay. I just wanted to make
25 sure. And that's similar to the concept that they

1 were talking about before, which you said was just
2 mathematical, that if you increase the Republican --
3 I'm sorry. If you increase the Democratic index in
4 D2, it has to decrease the Democratic index in one
5 or more of the other congressional districts, right?

6 **A. Correct.**

7 Q. And then she says -- well, it looks like
8 Ms. Stewart says, "Sanderoff's DPI for your map H is
9 51.8 percent. That's not enough for a midterm
10 election so we adjusted some edges, scooped up more
11 of Albuquerque and are now at 53 percent. CD1 is
12 54 percent, CD3 is 55.4 percent."

13 So do you agree that 51.8 percent DPI is
14 not likely to turn out -- well, let me think about
15 this. So 51.8 percent DPI is not very competitive.

16 MS. SANCHEZ: Object to the form.

17 **A. Well, 51 percent is competitive, right? I**
18 **mean, it's a close election.**

19 Q. (By Ms. DiRago) So that's close. What
20 about 53 percent?

21 **A. Fifty-three, in my report I spoke about**
22 **53/47, you know, generally speaking, to be still**
23 **competitive. And of course, I also gave all the**
24 **provisos about all the other factors that come into**
25 **play.**

1 Q. What about 54 percent?

2 A. **Fifty-four, as I opined, is, you know,**
3 **right on the edge of -- usually people are looking**
4 **at 54 to 46 as a range of where -- for**
5 **competitiveness, but again when one takes into**
6 **account the other factors.**

7 Q. And 55.4, then, is outside of that range?

8 A. **55.4 is usually something that is -- well,**
9 **it's out of the 54/46 range, yes.**

10 Q. Would you consider that safe?

11 A. **It would, again, depend on other factors.**
12 **Yeah, I would consider it safe. I think 55.4 in the**
13 **northern district is safe, safer than 55 in the**
14 **southern district probably. More things can happen,**
15 **more things are unpredictable in the south.**

16 Q. Did you receive a subpoena for documents
17 in this case?

18 A. **Yes.**

19 Q. Did you provide documents in this case?

20 A. **No.**

21 Q. How come?

22 A. **The attorneys advised me not to. Because**
23 **they had filed motions advising the Court that they**
24 **were not going to provide them awaiting the judge's**
25 **rulings.**

1 Q. Did you search for relevant documents in
2 response to the subpoena?

3 A. No.

4 Q. So you don't know if you have relevant
5 documents or not?

6 A. Correct.

7 Q. Okay. I don't have any more questions.

8 A. Great.

9 MS. SANCHEZ: I'll reserve. I don't know
10 if anyone else -- I think it's just Kyle. I'm not
11 sure if he has any questions.

12 MR. DUFFY: We don't have any questions.
13 Thank you.

14 THE VIDEOGRAPHER: Before we go off the
15 record, could we please have you place your orders
16 on the record?

17 MS. SANCHEZ: For the legislative
18 defendants -- this is Ms. Sanchez -- Mr. Sanderoff
19 will read and sign and E-tran is fine with us.
20 Thank you.

21 MS. DIRAGO: E-tran is good for us, too.
22 Can we get an expedited copy?

23 MR. DUFFY: The executive defendants don't
24 need any transcripts. Thank you.

25 THE VIDEOGRAPHER: Okay. We're going off

1 the record. The time is 12:22.

2 (The proceedings concluded at 12:22 p.m.)

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1 REPUBLICAN PARTY OF NM V OLIVER, ET AL.

2 SIGNATURE/CORRECTION PAGE

3 If there are any typographical errors to
4 your video deposition, please indicate them below:

5

6 PAGE LINE

7 _____ Change to _____

8 _____ Change to _____

9 _____ Change to _____

10 _____ Change to _____

11 Any other changes to your video deposition
12 are to be listed below with a statement as to the
13 reason for such change.

13 PAGE LINE CORRECTION REASON FOR CHANGE

14 _____

15 _____

16 _____

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19 _____

20 I, BRIAN SANDEROFF, do hereby certify that I
21 have read the foregoing pages of my testimony as
22 transcribed, and that the same is a true and correct
23 record of the testimony given by me in this
24 deposition on September 11, 2023, except for the
25 changes made.

24 _____
Date Signed

BRIAN SANDEROFF

1 STATE OF NEW MEXICO
2 COUNTY OF LEA
3 FOURTH JUDICIAL DISTRICT COURT
4 No. D-506-CV-2022-00041, JUDGE VAN SOLEN
5 REPUBLICAN PARTY OF NEW MEXICO;
6 DAVID GALLEGOS; TIMOTHY JENNINGS;
7 DINAH VARGAS; MANUEL GONZALES, JR.;
8 BOBBY and DEANN KIMBRO, and PEARL GARCIA,

9 Plaintiffs,

10 -vs-
11 MAGGIE TOULOUSE OLIVER, in her official capacity as
12 New Mexico Secretary of State; MICHELLE LUJAN
13 GRISHAM, in her official capacity as Governor of New
14 Mexico; HOWIE MORALES, in his official capacity as
15 New Mexico Lieutenant Governor and President of the
16 New Mexico Senate; MIMI STEWART, in her official
17 capacity as President Pro Tempore of the New Mexico
18 Senate, and JAVIER MARTINEZ, in his official
19 capacity as Speaker of the New Mexico House of
20 Representatives,

21 Defendants.

22 REPORTER'S CERTIFICATE

23 I, JAN WIMBERLY, CCR No. 13, DO HEREBY CERTIFY
24 that on September 11, 2023, the video deposition of
25 BRIAN SANDEROFF was taken before me at the request
of, and sealed original thereof retained by:

TROUTMAN PEPPER
227 W. Monroe Street, Suite 3900
Chicago, IL 60606
312-759-1920

BY: MOLLY S. DIRAGO, ESQ.
molly.dirago@troutman.com

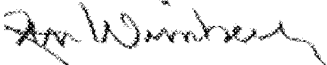
I FURTHER CERTIFY that copies of this
Certificate have been mailed or delivered to all
Counsel, and parties to the proceedings not
represented by counsel, appearing at the taking of
the video deposition.

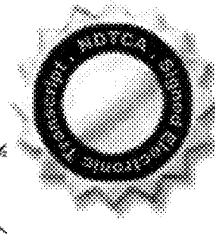
1 I FURTHER CERTIFY that examination of this
2 transcript and signature of the witness was
3 requested by the witness and all parties present.
4 On _____, 2023, a letter was mailed or
5 delivered to SARA N. SANCHEZ, ESQ., regarding
6 obtaining signature of the witness, and corrections,
7 if any, were appended to the original and each copy
8 of the video deposition.

9 I FURTHER CERTIFY that the recoverable cost of
10 the original and one copy of the video deposition,
11 including exhibits, to MOLLY DIRAGO, ESQ., is
12 \$ _____.

13 I FURTHER CERTIFY that I did administer the
14 oath to the witness herein prior to the taking of
15 this video deposition, that I did thereafter report
16 in stenographic shorthand the questions and answers
17 set forth herein, and that the foregoing is a true
18 and correct transcript of the proceeding had upon
19 the taking of this video deposition to the best of
20 my ability.

21 I FURTHER CERTIFY that I am neither employed by
22 nor related to nor contracted with (unless excepted
23 by the rules) any of the parties or attorneys in
24 this case and that I have no interest whatsoever in
25 the final disposition of this case in any court.


JAN WIMBERLY, CCR
Trattel Court Reporting
609 12th Street NW
Albuquerque, NM 87102
CCR No. 13
License Expires: 12/31/2023



PLAINTIFFS' EXHIBIT 26

STATE OF NEW MEXICO
COUNTY OF LEA
FIFTH JUDICIAL DISTRICT

REPUBLICAN PARTY OF NEW MEXICO, DAVID
GALLEGOS, TIMOTHY JENNINGS, DINAH
VARGAS, MANUEL GONZALES, JR., BOBBY AND
DEE AN KIMBRO, and PEARL GARCIA,

Plaintiffs,

vs.

No. D-506-CV-2022-00041

MAGGIE TOLOUSE OLIVER, in her official
capacity as New Mexico Secretary of
State, MICHELLE LUJAN GRISHAM, in her
official capacity as Governor of New
Mexico, HOWIE MORALES, in his official
capacity as New Mexico Lieutenant
Governor and President of the New Mexico
Senate, MIMI STEWART, in her official
capacity as President Pro Tempore of the
New Mexico Senate, and JAVIER MARTINEZ,
in his official capacity as Speaker of
the New Mexico House of Representatives,
Defendants.

VIDEO-RECORDED ZOOM DEPOSITION OF JOWEI CHEN, Ph.D.
September 10, 2023
12:30 P.M. - 5:55 P.M.

PURSUANT TO THE NEW MEXICO RULES OF CIVIL
PROCEDURE, this deposition was:
TAKEN BY: MOLLY DiRAGO
Attorney for PLAINTIFFS

REPORTED BY: Sarah R. Padilla, RPR, CSR, NM CCR#525
TRATTEL COURT REPORTING & VIDEOGRAPHY
P.O. BOX 36297
ALBUQUERQUE, NEW MEXICO 87176

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A P P E A R A N C E S

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ssamchez@peiferlaw.com

Also Present: Paul Thompson, Legal Videographer

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I N D E X

WITNESSES:	PAGE:LINE
JOWEI CHEN, PH.D.	
EXAMINATION BY: MS. DIRAGO	6:12
EXAMINATION BY: MR. WILLIAMS	116:23
COURT REPORTER'S CERTIFICATE	121:1

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EXHIBITS MARKED

EXHIBIT NO.	DESCRIPTION	PAGE:LINE
EXHIBIT 1	JOWEI CHEN, PH.D.'S EXPERT REPORT	15:15
EXHIBIT 2	SCREEN SHOT	58:13
EXHIBIT 3	SCREEN SHOT OF AMAZON PAGE	117:20

1 Remote, Via Zoom, Sunday, September 10, 2023

2 1:30 - 5:55 p.m.

3 -oOo-

4 THE VIDEOGRAPHER: Today is September 10th,
5 2023, the time is 1:30 p.m., my name is Paul Thompson.
6 I am a legal video specialist with Trattel Court
7 Reporting and Videography in Albuquerque, New Mexico.
8 We are here for the deposition of Jowie Chen, Ph.D., in
9 the case of the Republican Party of New Mexico, et al,
10 versus Maggie Toulouse Oliver, et al.

11 Will Counsel please state their appearances for
12 the record.

13 Ms. DiRago: Sure. My name is Molly DiRago.
14 I'm from the law firm of Troutman, Pepper, Hamilton,
15 Sanders, LLP, and I represent the named plaintiffs.

16 MR. WILLIAMS: This is Lucas Williams with
17 Hinkle Shanor for the legislative defendants, also
18 present is Sara Sanchez with the Peifer firm for the
19 same defendants.

20 Ms. DiRago: Is Sarah counsel?

21 MR. WILLIAMS: I don't know who Ms. Padilla is.
22 (A discussion was held off the record.)

23 THE COURT REPORTER: I will do a quick read on
24 before I swear the witness in. My name is Sarah
25 Padilla, certified court reporter. This deposition is

1 being held via Zoom videoconferencing. The witness and
2 reporter are not in the same room. The witness will be
3 sworn in remotely pursuant to agreement of all parties.
4 Do the parties stipulate that the testimony is being
5 given as if the witness were sworn in person?

6 Ms. DiRago: Yes.

7 MR. WILLIAMS: The defendants stipulate.

8 (Witness sworn.)

9 -oOo-

10 JOWEI CHEN, Ph.D.,

11 (being duly sworn, testified as follows:)

12 EXAMINATION

13 BY Ms. DiRago:

14 Q Hi, Mr. Chen. My name is Molly DiRago. How
15 are you today?

16 A **Good afternoon, Ms. DiRago.**

17 Q I represent the named plaintiffs in the case,
18 as you just heard me say. And I think the answer to
19 this is yes. Have you ever been deposed before?

20 A **Yes.**

21 Q And I think it has been probably numerous
22 times; right?

23 A **Yes.**

24 Q Okay. So I'm going to skip all the
25 formalities. I think you know that you need to answer

1 verbally and that stuff. But I do want to make sure
2 because this is important to me, that if I ask a
3 question that you don't understand, that you let me
4 know. Is that okay?

5 **A Yes.**

6 Q And is there any reason why you can't testify
7 truthfully today?

8 **A No.**

9 Q Okay. I will also -- if you need a break, just
10 let me know. I will take a lot of breaks, but please
11 just let me know.

12 **A Sure. Thank you.**

13 Q So can you state your name and address for the
14 record.

15 **A My name is Jowei Chen. My address is -- well,**
16 **I will give you my work address. It is 426 Thompson**
17 **Street, Ann Arbor, Michigan 4810 -- I believe it is**
18 **48109, if I am not misremembering.**

19 Q Okay. If I find out it is not, I won't be mad.

20 Okay. So I read your expert report and you
21 have your educational background in there. And you talk
22 about your employer and your position right now. So I'm
23 not going to go into any of that, unless you tell me
24 that something has changed since you wrote your expert
25 report. Has anything changed since you wrote it?

1 **A No. That information is current.**

2 Q Okay. What about the opinions that you
3 expressed in your report? Are those still your opinions
4 today?

5 **A Same.**

6 Q Are you testifying here pursuant to a
7 consulting agreement?

8 **A I'm not totally sure what that means.**
9 **Obviously, I have been hired. I am just going to point**
10 **you to the information that I have which is in -- well,**
11 **as I generally state in my expert report, I obviously**
12 **understand that I have been hired as an expert by the**
13 **defendant's counsel.**

14 Q Okay. And it looked like you were referring to
15 something on your desk. Is that your expert report?

16 **A Sure. I should have mentioned I was just**
17 **looking at my expert report and seeing if I had**
18 **generally just said what I just said.**

19 Q Okay. Do you have anything else on your desk
20 that you will be referring to today during the
21 deposition?

22 **A No. I have a printout of my expert report.**
23 **I -- on my desk I do not have any other documents, other**
24 **than my own expert report.**

25 Q Okay. Are you being paid for your testimony

1 today at this deposition?

2 **A I'm going to answer that question, yes.**

3 **I should also clarify I have a blank sheet of**
4 **paper. Sometimes during depositions I do**
5 **occasionally -- if you ask a really long question, I**
6 **might try to just write down the question before I**
7 **answer. So I do have a blank sheet of paper, but it's**
8 **not any sort of document other than a sheet of paper**
9 **where I could write notes.**

10 Q Okay. Got it.

11 **A Your next question was am I being paid, and the**
12 **answer is yes.**

13 Q What is the rate that you are being paid?

14 **A \$750 an hour.**

15 Q Is your payment tied in any way to the results
16 of your expert report?

17 **A No.**

18 Q Is your payment tied in any way to the result
19 of this litigation once it is over?

20 **A No.**

21 Q Do you expect to testify at trial on this case?

22 **A I have no knowledge of that.**

23 Q Do you expect to testify at an evidentiary
24 hearing in the case?

25 **A I just don't know. I have not been given**

1 **instructions one way or another. Obviously, I will**
2 **follow whatever instructions I'm given.**

3 Q Have you ever been excluded as a witness in a
4 case?

5 A No.

6 Q When was the last time you gave expert
7 testimony, either in court or a deposition?

8 A I believe -- and I am going to refer you to
9 paragraph 3 in my expert report where I have listed the
10 cases in which I have been disclosed as an expert. And
11 I believe the answer to your question would be the last
12 case that is listed, which is -- it was a Kansas case.
13 But it's Rivera v. Schwab and Abbott.

14 Q And did you testify in court in the Rivera
15 case?

16 A Yes.

17 Q Do you remember roughly what month and year
18 that was?

19 A I believe that was early summer or late spring
20 of last year. I don't remember the exact date, but
21 sometime around May, I think, or April.

22 Q Dr. Chen, are you an expert in gerrymandering?

23 A So I am going to answer that question by
24 referring you to the second sentence in my second
25 paragraph in my report. And there I say my academic

1 **areas of expertise include legislative elections,**
2 **spatial statistics, geographic information systems, data**
3 **redistricting, racial politics, legislatures, and**
4 **political geography. So redistricting certainly**
5 **includes gerrymandering.**

6 Q So that is a yes?

7 A **Yes.**

8 Q Okay. But you don't render an expert opinion
9 about SB 1, whether it was gerrymandering or not;
10 correct?

11 A **That is correct.**

12 Q Were you asked to render an expert opinion
13 about whether SB 1 was gerrymandered?

14 A **I'm going to refer you to -- I'm going to**
15 **answer your question by referring you to paragraph 4**
16 **where I list out what exactly I was asked to render an**
17 **opinion about. And so, no, I was not asked to answer a**
18 **question specifically about gerrymandering.**

19 Q Have you ever been asked to render an expert
20 opinion about whether a map was gerrymandered?

21 A **Yes.**

22 Q Okay. So you know how to look for indications
23 that a map was gerrymandered; right?

24 A **Yes.**

25 Q Is it possible to gerrymander a map that has

1 three congressional districts, in your opinion?

2 **A Yes.**

3 **Q Is it possible to egregiously gerrymander a map**
4 **that has three congressional districts, in your opinion?**

5 **A I'm going to generally answer that I have given**
6 **you what I know in my answer to your previous question.**
7 **The difference with this question is it used the phrase**
8 **"egregiously gerrymander." That was the only difference**
9 **with this question. I would generally say I understand**
10 **in the context of this particular litigation that the**
11 **phrase "egregious" when describing a partisan**
12 **gerrymander has a very specific legal context and legal**
13 **meaning. And I am not going -- I obviously don't have a**
14 **legal opinion about what that term means in the context**
15 **of this case, but I am going to stick with my answer to**
16 **your previous question.**

17 **Q Okay. That's fair.**

18 **So what is your definition of gerrymander?**

19 **A Gerrymander can mean a lot of things in a lot**
20 **of different contexts. So two of the most common -- but**
21 **certainly not the only context in which -- in my field**
22 **that one would use that term. And here I am speaking as**
23 **an academic in my field of political science -- is**
24 **racial and partisan gerrymandering; two different**
25 **meanings, two different contexts, two different ideas.**

1 **So it really depends on the context.**

2 Q Okay. So what is your definition of a partisan
3 gerrymander?

4 A **In my academic field of expertise, we would use**
5 **the term, or I would use the term partisan gerrymander**
6 **to refer to a map that is drawn to favor one political**
7 **party or another, to favor one candidate to another, or**
8 **to favor one political entity of some kind or another.**

9 Q Did you read the expert report of Brian
10 Sanderoff?

11 A **No. Sorry. I didn't mean to cut you off.**

12 Q No. No. No. I do that a lot. I sort of
13 finish a question and then add to it, so that is my
14 fault.

15 Did you review the New Mexico congressional map
16 that was in place before SB 1?

17 A **No. I was not asked to do so.**

18 Q Okay. So you did not compare that map to SB 1,
19 did you?

20 A **Correct.**

21 Q Did you review any of the previous New Mexico
22 congressional maps to SB 1? I'm sorry. Let me say that
23 again.

24 Did you compare any of the previous New Mexico
25 congressional maps to SB 1?

1 **A Not in this context of my expert report here.**

2 Q Did you review any of the maps that were
3 adopted by the CRC? By CRC that is the -- what does
4 that stand for -- the community redistricting committee.
5 Let me just check. That is an acronym that I forgot
6 what it stands for.

7 Okay. Did you compare the SB 1 map to any of
8 the concept maps adopted by the Citizen Redistricting
9 Committee?

10 **A Same answer, not in the context of my expert**
11 **report and -- when I did my expert report.**

12 Q In what context did you review those maps?

13 **A I'm sure that outside of -- I am obviously**
14 **aware of the CRC, of the commission, and its map. So**
15 **before this litigation or before I was involved in this**
16 **case, I certainly was aware of the Commission and I am**
17 **sure had seen the Commission's -- or at least had read**
18 **about the Commission's map drawing, in part through the**
19 **news, through just following the news. So I don't want**
20 **to say that I have never heard of or seen those maps**
21 **before. It is very possible that I saw a news article**
22 **where maybe there was a CRC map, something like that.**

23 Q Okay. But they played no part in your expert
24 report or your expert opinion in this case; right?

25 **A Right. Same answer as before, I was not asked**

1 **to consider or render an opinion about those maps.**

2 Q Do you agree that Congressional District 1 and
3 Congressional District 3 of New Mexico were
4 overwhelmingly Democratic before the passage of SB 1?

5 **A No opinion.**

6 Q And instead of saying congressional district
7 all the time, I'm going to say "CD." Is that okay?

8 **A Sure.**

9 Q Do you agree that CD 2 was a strong-leaning
10 Republican district before the passing of SB 1?

11 **A It is the same answer, no opinion.**

12 Q So now I am going to pull up the report, your
13 report, and formally mark it or formally produce it to
14 you, I guess. And I will mark it as Exhibit 1.

15 (Exhibit 1 was marked.)

16 BY Ms. DiRago:

17 Q Okay. Do you see the first page of your report
18 now?

19 **A Yes, I see that.**

20 Q Okay. Good. So I want to start on page 3 of
21 your report, paragraph 4. You sort of already went over
22 this. But I want to talk about your recent searched
23 question. You say defendant's counsel asked you to
24 determine whether the partisan characteristic of the
25 SB 1 plan could have plausibly emerged from a

1 partisan-neutral map drawing process, adhering to a
2 certain nonpartisan-districting criteria; correct?

3 **A Yes.**

4 Q And your conclusion -- spoiler alert, if no one
5 has read your report -- is that SB 1, indeed, could
6 plausibly have emerged from a partisan-neutral map
7 drawing process, adhering to nonpartisan-districting
8 criteria; correct?

9 **A Right.**

10 Q So beyond that question, you didn't look at
11 SB 1 for indications of partisan bias, did you?

12 **A Not beyond the work that I have obviously**
13 **described in my report.**

14 Q Okay. I'm going to move on to paragraph 5,
15 your summary of findings. You say, "I programmed a
16 partisan blank and computer algorithm to generate a
17 large number of redistricting plans while strictly
18 adhering to the aforementioned districting criteria";
19 correct?

20 **A Yes.**

21 Q Is that partisan-blank computer algorithm a
22 construct of Monte Carlo algorithm?

23 **A No.**

24 Q What is that algorithm?

25 **A It is an MCMC version of a Sequential Monte**

1 **Carlo.**

2 Q What do you mean by an MCMC version?

3 **A So in the context of redistricting simulations,**
4 **what MCMC means is that it is iterative. So every**
5 **iteration -- and it is always going to be a large number**
6 **of iterations -- considers redraws in some ways to the**
7 **borders. These are, of course, random redraws; hence**
8 **why we call it an MCMC. MCMC, obviously refers to my**
9 **academic field. MCMC refers to Markov Chain Monte**
10 **Carlo. So MCMC is describing an algorithmic method**
11 **where a computer considers random changes or random**
12 **proposed changes to the borders of a districting plan**
13 **and their iterative; they are one after another, and**
14 **there is a long series of them in any typical MCMC**
15 **algorithm. And that is how mine proceeds.**

16 Q Had you ever used an MCMC algorithm before your
17 expert work in the case?

18 **A Yes.**

19 Q For a case -- a prior case you used MCMC?

20 **A Yes.**

21 Q What case was that?

22 **A There is so many that I'm not sure I can list**
23 **them all. But I'm going to refer you to paragraph 3**
24 **where I have listed out prior cases in which I have**
25 **produced an expert report in which I have authored an**

1 **expert report. And I would just generally say that**
2 **pretty much all the recent ones over the past roughly**
3 **five years I have been using an MCMC algorithm.**

4 Q What algorithm did you use before that?

5 A So I would have to go way back to identify a
6 case where I used an algorithm that is not an MCMC. I
7 can definitely say that for the past five years, they
8 have all been MCMC algorithms. I think way back when I
9 started producing simulations as an -- in expert witness
10 reports over ten years ago, I certainly used an earlier
11 algorithm that was not an MCMC.

12 Q Why did you discontinue using that earlier
13 algorithm?

14 A Well, my academic work has developed since
15 then. I have done a lot more work in developing
16 redistricting algorithms and have found ways that
17 produce plans that are more targeted at getting at
18 specific redistricting criteria, getting at equal
19 population, for example. And I found that changes to
20 the algorithm helped that along to help achieve certain
21 criteria. I would say that has been the biggest driving
22 factor behind developments in redistricting -- well, in
23 certainly the work that I do in simulation algorithms.

24 Q Okay. Let's look at paragraph 7. So you
25 generated 1,000 computer-simulated maps as part of your

1 expert work in this case; right?

2 **A Yes.**

3 Q And, well, you have already said that you have
4 used this MCMC algorithm for about five years. Can you
5 estimate how many maps you have created using that
6 algorithm?

7 **A I couldn't even begin to give you a ballpark.**

8 Q Okay. So thousands?

9 **A I really couldn't begin to tell you if that is
10 even in the right ballpark.**

11 Q Okay.

12 How long did it take you to produce these
13 thousand maps that you created for your report?

14 **A For this report, several days. I can say it
15 was under a week, but I didn't really keep track of
16 time.**

17 Q What computer did you use to produce those
18 maps?

19 **A I have a desktop. It is Lenovo.**

20 Q How long did it take you to write your report?

21 **A I don't have my time log in front of me right
22 here to be able to give you a precise answer, but I
23 would generally say I finished the report a little bit
24 before the deadline on August 25th, and I certainly
25 started doing work for this report sometime in late July**

1 **or maybe it was mid July. I don't remember the exact**
2 **date that I started working.**

3 Q Okay. So I want to talk about these 1,000 maps
4 that you created. As I understand it, you create the
5 1,000 maps making sure they are partisan neutral, and
6 then you can use those to compare to SB 1 to determine
7 if SB 1 could have plausibly been produced by a
8 partisan-neutral-map drawing process; correct?

9 A I just -- I do understand what you are trying
10 to say, but I do disagree with the way that it was
11 phrased. So I don't check to make sure that the maps
12 are partisan neutral, whatever that might even mean.
13 The algorithm itself is what is partisan neutral,
14 meaning that the algorithm is partisan blind. It is not
15 doing anything that takes into consideration partisan
16 data. So I just wanted to correct that.

17 Q No. That is fantastic.

18 So if the algorithm is not partisan blind,
19 those maps would be useless in determining whether SB 1
20 could have been drawn with a partisan-neutral map
21 drawing process; right?

22 A I don't have an opinion about that statement.

23 Q Well, isn't the whole purpose of producing
24 1,000 partisan-blind maps is that you can then compare
25 it to a map to determine if a map could have been drawn

1 under partisan-neutral circumstances; right?

2 **A My opinion is a little bit narrower than that.**

3 Q Okay.

4 **A So I will just restate my opinion.**

5 Q Okay.

6 **A Is that the point of -- for me, in my work of**
7 **using a partisan-blind algorithm is so that I can follow**
8 **certain districting criteria that I have obviously**
9 **described in detail and produce a large number of maps**
10 **that adhere to or follow those districting criteria,**
11 **those nonpartisan-districting criteria. And then when I**
12 **actually compare the enacted map, the SB 1 district's**
13 **characteristics on partisanship, then can I determine**
14 **whether those districts have partisan characteristics**
15 **that could plausibly have emerged from a map-drawing**
16 **process that follows those criteria.**

17 Q So my question, then, is that if that algorithm
18 is not partisan blind, the maps -- let me ask you this.
19 If the algorithm was not partisan blind, would they be
20 useful in rendering an expert opinion about whether the
21 enacted map was partisan neutral?

22 **A My answer is the same as before. I don't have**
23 **an opinion about that.**

24 Q So, then, why do you draw partisan-blind maps
25 in the first place if it doesn't matter?

1 **A Again, I'm going to -- I am going to clarify**
2 **that the point here is not to draw partisan-blind maps.**
3 **The point is what I am -- in my work, what I am doing is**
4 **drawing maps that are the result of partisan-blind**
5 **districting considerations, a partisan-blind algorithm**
6 **that produces certain maps. And so the reason that**
7 **matters, the reason why I do this, is so that I can take**
8 **those maps that emerge from those partisan-neutral**
9 **districting considerations, that partisan-blind**
10 **algorithm that we have been talking about, and see**
11 **whether or not the partisan characteristics of the SB 1**
12 **plan are typical of characteristics that could have**
13 **emerged -- partisan characteristics that could have**
14 **emerged from a map-drawing process that follows those**
15 **criteria.**

16 Q Okay. And what I am asking, then, is if -- I
17 don't know. I think we might be talking past each
18 other. I am a sure it is something I am saying, but I
19 don't know what it is that is getting you to keep
20 repeating the same answer. I am just asking about is
21 that -- you know, it is obviously very important to your
22 work to create 1,000 maps from your algorithm that is
23 from a partisan-blind algorithm; right?

24 **A Yes, it is important that it is a**
25 **partisan-blind algorithm.**

1 Q So if that algorithm is not partisan blind, it
2 is useless to render any opinion -- expert opinion about
3 the enacted map; right?

4 A I do understand your question. And, again, my
5 answer is that I don't have an opinion. I have
6 not analyzed that question. I don't have an opinion.

7 Q Okay. Let's move on to paragraph 9. So this
8 is the redistricting criteria that you sort of mentioned
9 earlier. You say, "I programmed the algorithm" -- I'm
10 sorry. You say, "I programmed the computer algorithm to
11 create 1,000 independent simulated maps -- plans,
12 adhering to the following eight districting criteria,"
13 and you do identify those criteria. I want to start --
14 well, let me ask you, these eight districting criteria,
15 are these the partisan-neutral considerations that you
16 have programmed into your algorithm?

17 A Yes.

18 Q Who gave you these eight criteria?

19 A I am just going to generally refer you to, I
20 guess, pretty much all the sections of paragraph 9 where
21 I explain exactly how defendant's counsel gave me these
22 instructions to incorporate these criteria into the
23 algorithm.

24 Q The answer is defendant's counsel gave you
25 these criteria; right?

1 **A Yes.**

2 Q All right. Let's start with population
3 equality. That is paragraph 9-A, second sentence says,
4 "In the SB 1 plan, the most-populated district (CD-2)
5 and the least populated district (CD-1) have a
6 difference in population of only 14 people."

7 You go on to say that your algorithm was
8 planned to produce maps that did not have more than a
9 14-person deviation; is that right?

10 **A Correct.**

11 Q Okay. So your algorithm was programmed to
12 produce maps that did not have more than 705,847 voters,
13 and not less than 705,834 voters; right?

14 **A People, not voters. But I agree with that.**
15 **But it is numbers obviously, but people.**

16 Q That is an important distinction. Thank you.
17 So there is no magic about a population
18 difference of 14 people; right?

19 **A I am not sure what you mean by magic.**

20 Q Well, why did you choose 14 people as a
21 population deviation?

22 **A I did not choose 14 people as a population**
23 **deviation.**

24 Q Okay. Have you ever used 14 people as a
25 population deviation in prior maps?

1 **A You are asking me if I have ever drawn a map**
2 **that has a deviation of under 14 people?**

3 Q Yes.

4 **A Okay. If that is the question, the answer is**
5 **yes.**

6 Q And was that related to expert work in a
7 lawsuit?

8 **A Yes.**

9 Q Which case was that?

10 **A Well, there have been so many. I mean, I will**
11 **just point you to one. So that Kansas case that we**
12 **talked about a while earlier today, certainly I produced**
13 **equally-populated congressional districting plans in**
14 **Kansas. The only difference was that was four**
15 **congressional districts rather than three, but I made**
16 **sure they were perfectly equally populated. So that was**
17 **certainly a deviation of under 14 people.**

18 Q And did you use your MCMC algorithm to create
19 that map in Kansas?

20 **A I didn't create a map in Kansas. I did a**
21 **similar sort of exercise where I produced a large number**
22 **of simulations. And, yes, I used an MCMC.**

23 Q And did you program the MCMC in that situation
24 to have a deviation of 14 people or less?

25 **A No. Like I said, I programmed the algorithm**

1 **there to produce perfectly equally populated districts.**

2 **So a deviation of less than 14 people.**

3 Q Do you know if any prior New Mexico maps had a
4 population deviation of plus or minus 7 people?

5 **A I don't specifically know the answer to that.**
6 **I do generally know that it has been a past practice in**
7 **New Mexico to have congressional districts that are**
8 **very, very close to perfect equality on population.**

9 Q Okay. All right. I'm going to skip down to
10 paragraph 9-D, municipality considerations. This
11 requirement was given to you by defendant's counsel as
12 well; right?

13 **A That is correct. I'm sorry. Let me just**
14 **revisit my answer, if I heard -- actually, let me ask**
15 **the court reporter to read back that question, if I**
16 **could. I am not sure I totally heard all the words. I**
17 **just wanted to make sure.**

18 **(Record read.)**

19 THE WITNESS: Yeah. Thank you. I just wasn't
20 sure if heard wrong or something like that.

21 I am happy to answer that question. I can also
22 let you, you know, reask a different question.

23 BY Ms. DiRago:

24 Q You can answer that.

25 **A Okay. Well, I mean, I guess my answer is I**

1 **don't quite understand the question. Maybe you want to**
2 **rephrase it.**

3 Q Okay. So you have had redistricting criteria
4 in paragraph 9-D that you title "municipality
5 considerations"; correct?

6 A **Yes.**

7 Q And then in this paragraph you describe a lot
8 of, I guess, instructions that you gave your algorithm
9 related to municipality considerations; is that right?

10 A **Yes.**

11 Q And my question is who gave you those
12 considerations to plug into your algorithm?

13 A **Defendant's counsel instructed me to program**
14 **the algorithm with these considerations.**

15 Q Do you know why defendant's counsel instructed
16 you to program the algorithm with these considerations?

17 A **No.**

18 Q Did you ask?

19 A **No.**

20 Q Okay. I'm going to look at paragraph 9-E, and
21 I am going to ask you the same questions. So in
22 paragraph 9-E it says, "Indian reservation
23 considerations," and in that paragraph you describe more
24 instructions that you gave your algorithm. And these
25 are related to the Indian reservation considerations; is

1 that right?

2 **A Correct.**

3 Q And did defendant's counsel give you these
4 considerations?

5 **A Defendant's counsel gave me those instructions.**

6 Q Do you know why defendant's counsel gave you
7 those instructions?

8 **A No.**

9 Q Did you ask?

10 **A No.**

11 Q Okay. I'm going down to paragraph 9-F, which
12 is page 8. And now we are looking at the oil industry
13 considerations. And in paragraph 9-F you describe more
14 instructions. Were those instructions given to you by
15 defendant's counsel?

16 **A Yes.**

17 Q So defendant's counsel told you to spread out
18 the state's oil wells across multiple districts;
19 correct?

20 **A Well, the instruction was a little bit more**
21 **precise than that. And I do lay that out in F. But**
22 **obviously I report there that defendant's counsel gave**
23 **me those specific instructions.**

24 Q Okay. So you write that defendant's counsel
25 told you to spread out the state's oil wells across

1 multiple districts. Is that incorrect?

2 **A Yeah. It is not quite precise. So I am just**
3 **going to refer you to the actual words in paragraph F**
4 **here.**

5 Q Those are the actual words.

6 **A Okay. I do understand --**
7 **(Parties speaking simultaneously.)**

8 MR. WILLIAMS: Objection. Misstates the
9 evidence.

10 THE WITNESS: Mr. DiRago, I do understand you
11 are reading from those words in the first sentence. But
12 what I actually said there is that defendant's counsel
13 informed me that that was a policy consideration. Now,
14 the actual instructions that defense counsel gave to me
15 are in the next sentence, which is to make sure that any
16 computer-simulated plan contains no more -- sorry --
17 that no single district contains more than 60 percent.
18 So I do understand where you are reading from. But that
19 was not an instruction. That was a statement that
20 defendant's counsel gave to me.

21 BY Ms. DiRago:

22 Q Got it.

23 And that applied to each and every one of your
24 1,000 simulated maps; right?

25 **A That is correct.**

1 Q Was this policy consideration used to draw
2 SB 1?

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

4 Q Were you told anything more about why this was
5 a policy consideration?

6 A **All that I was told was what I have reported in**
7 **that first sentence. So aside from that first sentence,**
8 **no.**

9 Q If you instructed your algorithm to keep no
10 more than 50 percent of the state's oil wells in one
11 district, your maps would have been different; right?

12 A **I have no opinion.**

13 Q And you have no opinion because you didn't test
14 that out?

15 A **I did not do that analysis, and so I have no**
16 **opinion.**

17 Q Well, they wouldn't have been the same, would
18 they?

19 A **Same answer as before, I just have no opinion.**

20 Q So you think it is possible that an algorithm
21 instructing -- I'm sorry.

22 You think it is possible that instructions
23 telling your algorithm to keep no more than 60 percent
24 of the oil wells in any one district could have produced
25 the same maps if you instructed the algorithm to keep no

1 more than 50 percent of the state's oil wells in one
2 district?

3 **A Same answer as before, I really have no**
4 **opinion.**

5 Q Well, they couldn't be exactly the same, could
6 they?

7 **A Same answer as before, I really have no**
8 **opinion.**

9 Q Were you asked to spread out gas wells?

10 **A No.**

11 Q So just oil?

12 **A Just active oil wells, like I said in**
13 **paragraph F.**

14 Q Were you asked to spread out coal mines?

15 **A No.**

16 Q Were you asked to program your algorithm to
17 take into consideration coal mines?

18 **A No.**

19 Q What about injection wells?

20 **A No.**

21 Q What about carbon sources?

22 **A I am not totally sure what that phrase means,**
23 **but no.**

24 Q Apparently -- go ahead.

25 **A I just wanted to clarify, just by saying I'm**

1 **not totally sure what carbon -- I think I am not sure**
2 **what you mean by carbon, just because I am not familiar**
3 **with that industry. But I was not given those specific**
4 **words in the form of instructions.**

5 Q Okay. I get it.

6 New Mexico has a huge natural carbon source
7 called Bravo Dome. Apparently it is in the northeast
8 part of the state. You did not program your algorithm
9 to respect Bravo Dome or anything related to Bravo Dome,
10 I assume?

11 A **I just can't say for sure whether that counts**
12 **as an oil well. But obviously I was not given that**
13 **specific instruction.**

14 Q Okay. Were you asked to spread out any other
15 industry in New Mexico besides oil?

16 A No.

17 Q Have you ever been asked to spread out oil
18 wells when you are producing maps using your algorithm?

19 A **I have never in my career worked on a**
20 **redistricting case in a state where oil extraction**
21 **industry was a significant industry. And so, no, I have**
22 **not been -- ever been asked to do quite that before.**

23 Q So have you ever been asked to spread out any
24 industry in your expert work when you are programming an
25 algorithm to produce simulation maps?

1 **A Not that I recall.**

2 Q Do you know if the well -- I am going to refer
3 to the -- did you say something?

4 **A I'm sorry to cut you off.**

5 Q That's okay.

6 **A I can recall -- so your question is a really,**
7 **really broad one because you are asking generally about**
8 **any sort of industries. I would really have to go back**
9 **and think if anything that I have ever been asked to do**
10 **before in a redistricting algorithm counts as an**
11 **industry. I definitely recall being asked to -- in a**
12 **very specific context to produce simulations or to see**
13 **if it was possible produce to simulations that did**
14 **something along the lines -- and I don't remember the**
15 **precise details -- of something like -- in the context**
16 **of drawing school board districts to see if one could,**
17 **say, place a certain number of schools in one district**
18 **and other schools in another district, something along**
19 **those lines. I don't remember the quite precise**
20 **details. That is an example of something analogous in a**
21 **completely different industry. I don't remember the**
22 **precise details of what that -- you know, what those**
23 **instructions would have looked like.**

24 **So your question about industries -- and I just**
25 **want to be very precise. It is so broad that I am not**

1 **sure I can definitively say no. But I am not sure**
2 **exactly what counts as an industry either. So I just**
3 **wanted to note that I am not -- I am not completely**
4 **certain about what counts as an industry. But there**
5 **certainly have been contexts in which I have been asked**
6 **to do something like produce simulations that place a**
7 **certain -- that spread out some geographic locations to**
8 **some extent. And so I just want to be as complete as**
9 **possible in my answer, as much as I am able to.**

10 Q So you said spread out geographic locations.
11 What do you mean by that?

12 A **I think I just gave you an example, where I**
13 **remember producing simulations something along the lines**
14 **of drawing districts where each district would have one**
15 **or a certain number of schools, in other words the**
16 **schools would sort of be spread out in some way. It was**
17 **such a long time ago that I don't remember the details.**
18 **That is what I am generally referring to. I mean, just**
19 **thinking about it -- I am going to stick with my answer**
20 **which is that industry is so broad that it could mean a**
21 **lot of different things.**

22 **I have, for example, been asked to produce**
23 **simulations that spread out incumbents, incumbent**
24 **legislators to some extent. And so are incumbents an**
25 **industry? I mean, politicians are sort of a -- is sort**

1 **of a profession. So that is an example of spreading out**
2 **geographic units across different districts. Obviously,**
3 **that is not totally the same thing as what we are**
4 **talking about here. But it is analogous and you asked**
5 **about industry, spreading out industry. And so I just**
6 **wanted to be as complete as possible in my answer.**

7 Q Okay. I get it. Okay. That makes sense.

8 In all of the maps that you have ever
9 created -- and you testified you don't know how many
10 there were. But in all of the maps that you have ever
11 created, you have never been asked to spread out oil
12 wells, have you?

13 **A Right. Same answer as before on oil wells.**

14 Q Do you know if any previous congressional map
15 from New Mexico spreads out oil wells?

16 **A I don't have an opinion on that.**

17 Q So you don't know?

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

19 Q Do you know if any of the maps that were
20 adopted by the CRC spread out oil wells?

21 **A Same answer.**

22 Q So you weighted the requirement that the oil
23 wells be spread out more than the requirement not to
24 split counties; right?

25 **A Not really. I, of course, have listed these**

1 requirements in order. But these requirements that we
2 are talking about here, the oil wells requirement and
3 the minimizing county splits requirement, are
4 essentially absolute requirements. And what I mean by
5 that is every single map complies with the 60 percent
6 oil well consideration, the 60 percent oil well criteria
7 that I have described. And every single map complies
8 with the minimizing county splits, as I have described
9 it; meaning that there are only -- the only times a
10 county is split are for the Indian reservation
11 considerations that I have described earlier as well as
12 for equalizing population. So they are essentially on
13 the same level of importance as the oil wells
14 consideration. There is no sense in which a county is
15 additionally split for the sake of achieving the oil
16 industry considerations criteria.

17 Q So did you review the 1,000 maps that you
18 created?

19 A I am just not quite sure I heard the question
20 properly. Did I review all 1,000 is the question?

21 Q Yes.

22 A Okay. I analyzed all 1,000 on my computer. So
23 in that sense, I reviewed them.

24 Q So the answer that you gave -- well, first,
25 let's look at G. And I guess maybe this is just the way

1 you wrote it. You say that minimizing -- the title is
2 minimizing county splits. And then you wrote,
3 "Following instructions from defendant's counsel, I
4 programmed the simulation algorithm to avoid splitting
5 New Mexico's 33 counties, except when doing so was
6 necessary to avoid violating one of the aforementioned
7 criteria." Is that right?

8 **A Yes.**

9 Q So are you saying that even though that is how
10 you programmed it, in practice there were no maps that
11 split a county because it was otherwise spreading out
12 the oil wells? Or do you want to change what is written
13 in paragraph G?

14 **A No, I'm not saying --**

15 MR. WILLIAMS: Objection. Form and foundation.

16 THE WITNESS: No. My answer is I am sticking
17 by what I have written in paragraph G and I am sticking
18 by my previous answer. Which, again, is that counties
19 are split. Like I said before, counties are going to be
20 split for the purpose of achieving equal population and
21 for satisfying the Indian reservation considerations;
22 they are not being split for the purpose of satisfying
23 the 60 percent oil well rule.

24 BY Ms. DiRago:

25 Q How do you know that?

1 **A I programmed the algorithm.**

2 Q Do you have -- do you know if any of your 1,000
3 maps split a county in three?

4 **A I don't know the answer off the top of my head.**
5 **But obviously one could easily determine the answer by**
6 **looking at my 1,000 simulation maps.**

7 THE COURT REPORTER: Would it be a good time
8 for a break?

9 Ms. DiRago: Sure.

10 THE VIDEOGRAPHER: The time is 2:30 p.m. We
11 are going off the record.

12 (Recess.)

13 THE VIDEOGRAPHER: The time is 2:46 p.m. We
14 are back on the record.

15 BY Ms. DiRago:

16 Q Okay. Dr. Chen? Sorry, you switched on my
17 screen there.

18 So just in case you think I don't take your
19 criticisms -- don't think your criticisms are fair, I
20 did think about your comment that industry was a broad
21 term in the questions that I was asking you, and I agree
22 that that is very broad and difficult to answer because
23 of that. So I apologize. And so I did look up some of
24 the states where you said you have rendered an expert
25 opinion. So I will just ask you sort of more

1 specifically -- more specific questions that are more
2 fair than asking you something very broad.

3 So let me ask you -- okay. Have you ever
4 rendered an expert opinion based on maps that spread out
5 farms?

6 **A I don't recall that. I don't recall it**
7 **happening.**

8 Q Have you ever been asked to program your
9 algorithm to spread out farms?

10 **A Same answer. I don't specifically recall that**
11 **happening.**

12 Q Have you ever been asked to program your
13 algorithm to spread out ranches?

14 **A Same answer.**

15 Q How about orchards?

16 **A Same answer.**

17 Q That was from Florida.

18 What about any crops?

19 **A I think same answer.**

20 Q Have you ever been asked to program your
21 algorithm to spread out chemical plants?

22 **A Same answer.**

23 Q Electrical plants?

24 **A Same answer.**

25 Q What about factories?

1 **A Same answer.**

2 Q Have you ever been asked to program your
3 algorithm to spread out greenhouses?

4 **A Same answer.**

5 Q What about mines?

6 **A Same answer.**

7 Q How many oil wells are in New Mexico?

8 **A I don't remember off the top of my head.**

9 Q Do you know where the oil wells are located in
10 New Mexico?

11 **A I couldn't give you a complete description,**
12 **just sitting here in front of you here. Obviously, I**
13 **know they are across a couple different counties.**

14 Q Which counties are those?

15 **A I am not sure that I can give you a complete**
16 **listing in front of you here. Obviously, I turned over**
17 **the data they have counting up the oil wells across**
18 **different parts of New Mexico. But I don't -- I don't**
19 **have that data file here in front of me, so I can't give**
20 **you a complete answer.**

21 Q Okay. So you instructed your algorithm that
22 33.4. of New Mexico's oil wells were located in
23 Lea County; is that right?

24 **A I don't know the answer to that.**

25 MR. WILLIAMS: Can you repeat that question,

1 Molly? I don't think I caught that question.

2 BY Ms. DiRago:

3 Q Sure.

4 I said you instructed your algorithm that 33.4
5 percent of New Mexico's wells were located in
6 Lea County? I guess you don't have to answer it again.
7 Your answer, sorry, remind me, was that you don't
8 remember?

9 **A My answer is that I don't know. Like I said, I**
10 **have turned over the data files that had the oil well**
11 **data inputted into my algorithm. But I can't really**
12 **confirm or I have just no opinion about your specific**
13 **question right now.**

14 Q So did you ever know or you just don't
15 remember?

16 **A You are, again, referring to your statement**
17 **about Lea County and that 33 percent; right?**

18 Q That's correct, 33.4 percent.

19 **A And my answer is that there would have been no**
20 **reason for me to count up, to verify or not, that number**
21 **at the level of Lea County for the purpose of the**
22 **algorithm that I actually produced.**

23 Q Okay. So if I told you that my expert
24 Sean Trende, who I know you have met before -- if I told
25 you Mr. Trende said your data is programmed so that

1 33.4 percent of New Mexico's oil wells are located in
2 Lea County, would you disagree with that?

3 **A I have no opinion.**

4 Q Did you tell your algorithm that 28.2 percent
5 of New Mexico oil wells were located in Eddy County?

6 **A I did not give that instruction to the
7 algorithm.**

8 Q You did not give the instruction to the
9 algorithm that 28.2 percent of New Mexico oil wells were
10 located in Eddy County?

11 **A Yeah. That piece of information at the county
12 level, that is not something that I would have
13 specifically told the algorithm or instructed the
14 algorithm on.**

15 Q Well, you instructed the algorithm as to where
16 New Mexico oil wells were; right?

17 **A That is correct. I'm sorry. Let me just be
18 very precise about it.**

19 Q That is totally fine.

20 **A The algorithm inputted data on where oil
21 wells -- where active oil wells are located. And so
22 that data was inputted into the algorithm and obviously
23 considered by the algorithm. I never inputted that data
24 into the algorithm at the county level, which is why I
25 really have no basis for answering the questions that**

1 **you are kind of asking me about, about specific**
2 **counties.**

3 Q Okay. That is helpful. I do understand that.

4 So do you have any reason to disagree that
5 33.4 percent of New Mexico's oil wells -- actually, hold
6 on just a second. Strike that question.

7 You didn't look at the instructions that you
8 gave your algorithm to determine where -- which counties
9 the oil wells were located in New Mexico, did you?

10 **A I am going to ask the court reporter to repeat,**
11 **please.**

12 **(Record read.)**

13 THE WITNESS: My answer is I didn't look
14 because I know that that data was not inputted at the
15 county level.

16 BY Ms. DiRago:

17 Q Is there a way to determine how many oil wells
18 are in each county, according your algorithm?

19 **A Yes.**

20 Q Okay. But you didn't do that?

21 **A No. That information at the county level was**
22 **not necessary for me constructing the algorithm, so no.**

23 Q So if I told you that Lea County was -- well,
24 strike that.

25 If I told you that your algorithm was

1 programmed so that 44,008 oil wells were in Lea County,
2 would you disagree with that?

3 **A Your question to me is if I would disagree that**
4 **the algorithm was programmed so that a certain number of**
5 **oil wells were in -- you said in Lea County; right?**

6 Q Yes.

7 **A Okay. I -- my answer is no because -- I'm**
8 **sorry. My answer is I don't think that statement is**
9 **accurate because the program -- the algorithm is not**
10 **programmed to recognize or to be instructed on a certain**
11 **number of oil wells in a particular county. The**
12 **algorithm obviously gets data on the locations of all**
13 **the -- all active oil wells. But it is not programmed**
14 **in that way. It is just inputting data. Like I was**
15 **describing earlier, it was just inputting data on the**
16 **location of the oil wells, of the active oil wells.**

17 Q Okay. So you are programming data into the
18 algorithm and the location of the oil wells; right?

19 MR. WILLIAMS: Objection. Form. Foundation.
20 Misstates his testimony.

21 Ms. DiRago: I am asking a question.

22 MR. WILLIAMS: Yeah. And you are misstating
23 his testimony.

24 THE WITNESS: So my answer is that that is not
25 quite right. I am not programming data. I am

1 programming the algorithm. The algorithm itself is
2 inputting data on the location of the active oil wells.

3 BY Ms. DiRago:

4 Q And those locations of the oil wells are
5 located in counties; correct?

6 **A Sure. Obviously every location in New Mexico**
7 **is associated with a county.**

8 Q And the location of the oil wells which were
9 input -- hold on. I want to say this so that it is
10 precise for you. The location of the oil wells that
11 were programmed into the algorithm --

12 MR. WILLIAMS: Objection.

13 BY Ms. DiRago:

14 Q Okay. Well, how about this. The data from
15 your algorithm said that 33.4 percent of New Mexico's
16 oil wells were located in Lea County. And so -- and
17 your algorithm -- the data from your algorithm also said
18 that 28.2 percent of New Mexico oil wells were located
19 in Eddy County?

20 MR. WILLIAMS: Objection. Form. Foundation.

21 BY Ms. DiRago:

22 Q I didn't even ask a question.

23 So 28.2 plus 33.4 equals 61.6; is that right?

24 **A I don't have a calculator right in front of me.**
25 **I am happy to just trust your math on that.**

1 Q You can write it down. I know you have a piece
2 of paper.

3 A **All right. You want to read those numbers out
4 to me again, then.**

5 Q Sure. Lea County has 33.4 percent of
6 New Mexico's oil wells, according to your data, and Eddy
7 County has 28.2 percent of New Mexico oil wells,
8 according to your data. Add those up and they amount to
9 what?

10 A **Okay. The math question's answer is 61.6, if I
11 did this correctly. I am just going to qualify that by
12 saying those are just two numbers you gave to me. I
13 don't really know where they came from. You are
14 representing to me -- you represented to me, I think, as
15 part of the question that they are data from my
16 algorithm. And I am just going to clarify that the
17 algorithm, again, doesn't have data. The algorithm
18 inputs data.**

19 Q Okay.

20 A **Again, I don't know where those numbers are
21 coming from, but I am obviously affirming your math
22 about the 61 percent there.**

23 Q And did the algorithm input data that
24 Lea County had 33.4 percent of New Mexico's oil wells?

25 A **Again, same answer as before, it did not input**

1 **that specific piece of data. You know, I have explained**
2 **that it is not inputting data at the level of counties.**
3 **So that is, you know -- again, that is a number that you**
4 **are putting in front of me, but I am not in a position**
5 **to either say I agree or don't agree. I just don't know**
6 **where that number was calculated from.**

7 Q Okay. I think I understand.

8 So I think we are just going to have to assume
9 that for the rest of these questions. If you don't,
10 can -- you said you did not check to see what counties
11 or how many oil wells were in each county in New Mexico,
12 according to your algorithm; right?

13 A **Yes. Same answer as before. I am not**
14 **inputting any data into the algorithm.**

15 Q Okay. Sorry.

16 A **I understand what you are asking, but same**
17 **answer as before, that the algorithm is not ever**
18 **calculating data at the county level and does not use**
19 **data at the county level in terms of the number of**
20 **active oil wells. So that is why I keep saying I don't**
21 **know where this number came from. I am not disputing**
22 **it. I am just noting that it is a number you put in**
23 **front of me, and I am not able to say I verify it or**
24 **don't.**

25 Q So you instructed your algorithm about where

1 all of New Mexico's oil wells are; right?

2 **A I instructed the algorithm to input data that**
3 **has that information.**

4 Q Okay. So taking the numbers that I just gave
5 you regarding Lea and Eddy County, if that were true,
6 would that mean that for all of your maps Lea and Eddy
7 Counties could never be in the same district?

8 **A Yeah. I'm going to answer your question,**
9 **obviously same caveat as before. These are numbers you**
10 **just put in front of me. I don't know where they came**
11 **from. But certainly the two numbers that you have put**
12 **in front of me add up, like we have said, to over**
13 **60 percent. And so obviously that is -- I'm sorry --**
14 **61 percent. And so, of course, that is over 60 percent,**
15 **so certainly.**

16 Q Okay. So as long as that is true, that means
17 for all of your maps Lea and Eddy Counties could never
18 be in the same district; right?

19 **A Same as before, I think that you just asked the**
20 **same question, unless I misheard something.**

21 Q Okay. So all of the thousand maps that you
22 compared to SB 1 had Lea and Eddy Counties in different
23 districts; is that correct?

24 **A I cannot answer that question right now in**
25 **front of you without actually looking at the maps.**

1 Q So that is not something that you were
2 interested in looking at for your expert opinion?

3 A **That was not a question that was put forward to**
4 **me by defense counsel.**

5 Q If you realized that your algorithm was
6 programmed so that all maps had Lea and Eddy Counties in
7 different districts, would that matter to you?

8 A **No. Because that was not the question that was**
9 **put forward to me by defendant's counsel or that was not**
10 **a question that was put forward to me by defense**
11 **counsel.**

12 Q If that was the result due to this criteria
13 about spreading out oil wells, would that matter to you?

14 A **Same answer as before, that was not the**
15 **question that was -- those were not the questions that**
16 **were put forward to me and so I didn't analyze them.**

17 Q Did you run any maps without this oil well
18 requirement?

19 A **No. The considerations that I listed out are**
20 **for all 1,000 maps.**

21 Q So you didn't run any other maps that are not
22 part of your expert opinion for New Mexico, did you?

23 A **Well, I certainly produced simulations for**
24 **New Mexico before. I think I published an article many,**
25 **many years ago that had many statements. And I think**

1 **New Mexico may have been one of them from last decade.**

2 Q What was the name of that article?

3 **A So there is a 2013 article. And I am saying it**
4 **may have been. I am not just specifically remembering**
5 **what --**

6 Q Okay.

7 **A There have been many academic articles. And**
8 **certainly my academic articles are listed in my CV. So**
9 **in 2013 I wrote an article that covered many states.**
10 **And I just can't specifically remember if New Mexico was**
11 **among them. Obviously it was in 2013, so I was using**
12 **previous decades' data. And so that was an article with**
13 **Jonathan Rodden. So I have certainly done simulation**
14 **algorithms that have produced New Mexico maps before. I**
15 **don't remember the specifics of, say, how different were**
16 **the populations in previous decades, but I certainly may**
17 **have produced other New Mexico maps before. So I think**
18 **that was responsive to your question.**

19 Q So in the other New Mexico maps that you
20 produced, did you instruct your algorithm to spread out
21 oil wells?

22 **A I definitely have not done that in my academic**
23 **articles.**

24 Q Did you ever do it, besides these thousand
25 maps, obviously?

1 **A Sorry. Did I ever do what? Can you just state**
2 **the question again?**

3 Q Spread out the oil wells for your maps for
4 New Mexico that you produced?

5 **A Did I ever spread out the oil wells? So I**
6 **think I understand your question you are asking me. Did**
7 **I ever spread out the oil wells for the maps that I**
8 **produced? And my answer is that in the 1,000 maps that**
9 **I produced for this expert report, I followed the**
10 **consideration that I listed in Section F, paragraph 9-F,**
11 **where I made sure that no district contains more than**
12 **60 percent of the active oil wells. I think that is**
13 **what your question was asking me for.**

14 Q So actually I was -- so I asked you if you have
15 ever produced maps from New Mexico outside of these
16 1,000 maps that you produced and you describe in your
17 report, and I believe you said you have before?

18 **A I believe what I said was that I have produced**
19 **academic articles that have looked at simulations in a**
20 **wide variety of states, and New Mexico may have been one**
21 **of them.**

22 Q You never created those simulations. You are
23 saying you just looked at them; is that the difference?

24 **A No. I mean every time I write an academic**
25 **article about simulations, I am the one that is**

1 **programming an algorithm to produce simulations and then**
2 **I analyze the simulations.**

3 Q So you may have programmed an algorithm to
4 produce New Mexico maps in the past, but you don't
5 remember if you have?

6 A **That is my answer. I have certainly programmed**
7 **algorithms in the past for the purpose of academic work,**
8 **and my academic papers have looked at a very wide range**
9 **of states. New Mexico may have been one of those. I**
10 **just can't specifically recall right now. But I**
11 **definitely have written papers that have looked at a**
12 **wide range of states.**

13 Q Okay. And so can you recall if you ever
14 programmed any of those maps to spread out oil wells?

15 A **My answer is the same, which is that certainly**
16 **in my academic work when I have produced simulated maps**
17 **of any state, I have not put in this requirement of no**
18 **district containing 60 percent of -- containing no more**
19 **than 60 percent of the state's active oil wells.**

20 Q And I guess it is the qualifier "in my academic
21 work." I just want to understand have you done it
22 outside of your academic work, because you keep using
23 that qualifier?

24 A **Okay. And what is the question again?**

25 Q Have you ever programmed an algorithm to

1 produce maps in your academic work or outside of your
2 academic work to spread out oil wells?

3 **A Okay. I think I understand your question. And**
4 **you are specifically asking about outside of my academic**
5 **work. And I think the answer there is the same, that,**
6 **no, outside of my academic work, with the exception of**
7 **the simulations that we are talking about here today**
8 **with my expert report here, no. In other states, that**
9 **has just not been a consideration because I don't think**
10 **I have ever worked on a redistricting case in a state**
11 **where the oil production industry was such an important**
12 **or major part of the economy of the state.**

13 Q Why do you say that the oil industry is such an
14 important or major part of the state?

15 **A Defendant's counsel generally informed me about**
16 **that pattern.**

17 Q So you don't have an opinion on it beyond that
18 defendant's counsel told you that?

19 **A Yeah. Defendant's counsel has generally told**
20 **me that. I don't really -- I am not an expert on the**
21 **oil industry myself, so I really don't have any basis to**
22 **say otherwise.**

23 Q Did that criteria make sense to you when they
24 asked you to do it?

25 **A It certainly made sense to me. It was a**

1 **criteria that I could quantify and program into the**
2 **algorithm, and so it made sense to me.**

3 Q What about from a gerrymandering prospective?
4 Did you think it made sense considering that we are
5 looking at this map to see if there is evidence of
6 partisan bias?

7 **A I have no opinion on that.**

8 Q So your conclusion that SB 1 can plausibly have
9 emerged from a partisan-neutral map drawing process is
10 solely based on your comparison of the 1,000 simulation
11 maps that were required to spread out the oil wells;
12 correct?

13 MR. WILLIAMS: Objection. Form. Foundation.

14 THE WITNESS: The answer is no.

15 BY Ms. DiRago:

16 Q Okay. So what else is your conclusion -- so
17 your conclusion is based on a comparison of a thousand
18 maps that were not required to spread out the oil wells?

19 **A The answer to that question is no as well.**

20 Q Okay. So explain your first no, please.

21 **A Sure.**

22 Q Thank you for your patience, Dr. Chen.

23 **A Sure. Thank you.**

24 **You used the word "solely." And so that is --**
25 **you know, that is obviously not an accurate**

1 **characterization of everything I considered. So that is**
2 **why my answer was no.**

3 Q That is helpful.

4 A **Obviously, your second question was about**
5 **simulations that I didn't produce. So, obviously, the**
6 **answer there was no as well.**

7 Q So what else did you base your conclusion on?

8 A **Okay. I understand that question. I am just**
9 **going to generally refer you to -- I'm sorry to be so**
10 **broad about it. I'm going to refer you to everything in**
11 **my report here. I mean, I am describing how -- I am**
12 **describing all the analysis that I did. So, obviously,**
13 **that is analysis that spans many criteria in addition to**
14 **oil wells, that is based on looking at simulated plans,**
15 **it is based on comparing district by district, and as**
16 **well as an aggregate to those simulated plans to the**
17 **SB 1 plan, and it is also based on my analysis of the**
18 **partisanship of those individual districts.**

19 **So, again, I am sorry to be very broad about**
20 **it, but it is based on everything in my report. There**
21 **is quite a bit there. I have tried to kind of highlight**
22 **it there. It is based on all of those things.**

23 Q What analysis did you do -- strike that.

24 **So beyond comparing the 1,000 simulation map**
25 **drawings to SB 1 -- and that includes the analysis that**

1 you did in comparing them -- what else did you do?

2 **A Well, I think everything that I did is part of**
3 **that, is part of the comparing.**

4 Q That is sort of my point, yeah.

5 **A I see what you are asking. And, sure,**
6 **certainly the analysis that I am doing in this report is**
7 **generally within this broad category of comparing the**
8 **SB 1 plan, so the simulated plans. Obviously, I'm doing**
9 **a lot of different things in those comparisons that I go**
10 **into detail about in the report. But, yeah, that is my**
11 **answer.**

12 Q Do a lot of different things -- okay. But your
13 comparison is based only on the 1,000 simulation maps
14 that were required to spread out the oil wells; right?

15 **A It is only based on those 1,000 simulated maps**
16 **that are considering the other oil wells as well as**
17 **other criteria, but it's based on those 1,000 maps and**
18 **it is based on my analysis of the SB 1 plan and then**
19 **based on my comparison of those two things, comparing**
20 **the SB 1 plan to the simulated maps. So it is all of**
21 **those things. And, obviously, within each of those, it**
22 **is a lot of different ways of comparison.**

23 Q Yeah. I understand that.

24 So if you ran the 1,000 simulation maps without
25 the oil wells restriction, your ultimate conclusion

1 would likely be different; right?

2 **A I have no opinion.**

3 Q Okay. Well, your ultimate conclusion could be
4 different; right?

5 **A I really have no basis for an opinion on that.**

6 Q So you don't know if it could be different or
7 not?

8 **A I have no opinion. I have not analyzed that**
9 **question.**

10 Q Okay. So you don't know what your conclusion
11 would be if you ran those thousand maps using different
12 criteria than you used; right?

13 **A Same answer, no opinion.**

14 Q So you don't know if it would be different?

15 **A Right, I have no opinion.**

16 Q That is a different answer, but okay.

17 So your expert opinion in this case is
18 essentially that SB 1 can plausibly have emerged from a
19 partisan neutral map drawing process, as long as the Lea
20 and Eddy Counties are always split into different
21 districts; right?

22 **A That is definitely not my opinion. I have not**
23 **reached that opinion. So my opinion -- well, I am just**
24 **going to -- I am just going to refer you to paragraph 5**
25 **of my report and the last sentence, the partisan**

1 **characteristics of the SB 1 plan could have reasonably**
2 **emerged from a partisan neutral map drawing process,**
3 **adhering to all of the various districting criteria that**
4 **I describe later in the report.**

5 Q Right. And all of your maps split Lea and Eddy
6 Counties; right?

7 A I have no opinion on that.

8 Q So you don't actually know if SB 1 could have
9 plausibly emerged from a partisan neutral map drawing
10 process if it was compared to maps that didn't split Lea
11 and Eddy Counties; right?

12 A I have no opinion on that.

13 (Exhibit 2 was marked.)

14 BY Ms. DiRago:

15 Q Okay. So I think I will introduce another
16 exhibit. Sorry. This is not -- I can't get it to my
17 full screen. But this is a snippet that Mr. Trende sent
18 me. And this is what I was talking about, how he was
19 telling me that the number of oil wells -- that he was
20 representing that the number of oil wells for each
21 county is represented right there. And I really can't
22 tell you how he got this. I assume you know what he did
23 to get these numbers. But these are the numbers that I
24 am going off of and this is what we are going to talk
25 about at trial. So I just wanted to show you this.

1 Does this -- do you have any reason to think
2 that this has inaccurate information?

3 **A I am happy to have you represent to me that**
4 **that is what it is. I am just going to point out -- I**
5 **am just going to take issue with one thing, which is**
6 **that I think you said that you were assuming that I know**
7 **how he did this, and that is absolutely not true. I**
8 **have no idea where this came from. You have obviously**
9 **represented to me that Mr. Trende produced it, but I**
10 **have not seen what data or what calculations he did, and**
11 **so I have no idea what this is, other than what you have**
12 **represented it to me as.**

13 **But, obviously, I am happy to take your**
14 **representation on those things here. I just wanted to**
15 **clarify that because I think in your question you said**
16 **that you were assuming that I know what Mr. Trende did.**

17 Q Okay. I got it.

18 Dr. Chen, you seem like you know everybody. So
19 I just assumed you did. But you are right that that
20 assumption was probably unfair.

21 Okay. But I did want to share that with you so
22 that you understand where I am coming from. And I might
23 have more questions about it.

24 **A Okay. Yeah. I am happy to accept your**
25 **representation of what this is.**

1 Q I don't ever like hiding the ball.

2 Okay. So your algorithm -- I think you called
3 it an MCMC algorithm; is that right?

4 A **Yeah. I used that term earlier.**

5 Q What does that stand for again?

6 A **So the MCMC part is Markov Chain Monte Carlo.**

7 Q Okay. So you say the MCMC part, does that mean
8 there is a part of your algorithm that is not MCMC?

9 A **Right. What I said -- I believe what I said**
10 **earlier was that an MCMC version of a Sequential**
11 **Monte Carlo.**

12 Q Did you create that algorithm?

13 A **I programmed the algorithm.**

14 Q And I believe you said you used this algorithm
15 before?

16 A **Yes. I have used -- obviously, the core**
17 **methodology of the algorithm is one that I use all the**
18 **time, of course not the precise algorithm. The**
19 **algorithm is tailored from one state to another, because**
20 **every state has a different geography, every state has**
21 **got different districting criteria. So it is obviously**
22 **not exactly the same from state to state, but the core**
23 **methodology is.**

24 Q That makes sense.

25 And you developed the core methodology?

1 **A I programmed the core methodology in my**
2 **algorithm. I am certainly not the person who has**
3 **invented or conceptualized all of these things all by**
4 **myself. But I wrote, certainly, all of the program --**
5 **all of the programming code myself.**

6 Q Okay. So who did develop it?

7 **A I mean, the most accurate answer that I can**
8 **give is a lot different, very smart people, much smarter**
9 **than me, and who have been alive for much longer than I**
10 **have developed different parts of what go into these**
11 **sort of simulation algorithms. MCMC is an idea that has**
12 **been around for much longer than I have been alive. I'm**
13 **not sure I can really attribute credit to one person.**
14 **But the short answer is a lot of very different, smart**
15 **people.**

16 Q Has the core methodology of this algorithm been
17 peer reviewed?

18 **A Yes.**

19 Q By whom?

20 **A I will answer that question by pointing you to**
21 **my CV, which appears on page 33 of my expert report. So**
22 **probably if you go to page 33, the most recent article,**
23 **the latest articles that use this core methodology, at**
24 **least among my own publications, would be the last one,**
25 **that Chen and Stephanopoulos 2021 as well as the other**

1 **Chen and Stephanopolous from 2021 article in the Yale**
2 **Law Journal. So those are my most recent publications.**

3 **Now, other people -- other scholars, not**
4 **including myself, have also used these core**
5 **methodologies, have certainly published on MCMC and have**
6 **written about Sequential Monte Carlo algorithms. And**
7 **there are quite a few articles that are describing**
8 **those, especially on the MCMC side.**

9 Q So I guess I am asking about this core
10 methodology that you are using, not just generally MCMC.
11 Has that been peer reviewed?

12 A **Same answer as before, I am pointing you to --**
13 **the answer to your question was yes, then.**

14 Q Okay. And it is peer reviewed in these
15 articles that you were pointing me to?

16 A **Right. Right.**

17 Q But you wrote them?

18 A **The articles on my CV are all articles that I**
19 **wrote or co-authored, I guess.**

20 Q Has it been peer reviewed by any of your peers?

21 A **That is exactly what peer review means.**

22 Q And you are not -- are you a peer of yourself?
23 I just don't understand how you peer review your own
24 algorithm. Maybe I am misunderstanding. But I thought
25 that meant your peers review it, not you.

1 **A What peer review means in my academic field is**
2 **when you want to publish an article, it gets sent out to**
3 **other scholars. And those scholars are the ones**
4 **reviewing or reading your work. So that is what peer**
5 **review means.**

6 Q Do you explain anywhere in your report the
7 algorithm that you used?

8 **A Yes.**

9 Q Where is that?

10 **A I will point you to -- at a high level,**
11 **everything from page 6 -- sorry -- from paragraph 6 to**
12 **paragraph 8. But more specifically, the algorithm is**
13 **described in detail in pages 6, 7, 8, and 9. And then**
14 **pages 10, 11, and 12 display some output maps from that**
15 **algorithm. But the mechanics of what the algorithm is**
16 **considering is described in some considerable detail on**
17 **those pages.**

18 Q Okay. So you just very broadly described your
19 algorithm in these pages. I mean, that is not very
20 helpful. I don't see the word -- I don't see "MCMC"
21 anywhere. I think that is interesting. I don't see
22 "Sequential Monte Carlo" anywhere. That is interesting.
23 Is there a reason why you didn't say that in your
24 report, exactly what algorithm you are running?

25 **A I think I explained what the algorithm actually**

1 **does concretely, which is what I tried to do in my**
2 **expert reports. So that is what --**

3 Q What you think it is doing. Has it ever been
4 validated?

5 A **Yes.**

6 Q By whom?

7 A **So, obviously, I have used this algorithm --**
8 **the core methodology of this algorithm in previous**
9 **academic work, like I just described earlier. So it has**
10 **certainly been reviewed. Other scholars have written**
11 **pretty extensively on these sorts of algorithms,**
12 **especially on MCMC algorithms, and have certainly done**
13 **all kinds of validation tests. I could point you to**
14 **work by McCartan and Imai that has done such validation.**
15 **I could point you to work by Greg Hershlag and**
16 **Jonathan Mattingly. This sort of thing is studied**
17 **pretty widely in the academic community.**

18 Q What sort of thing?

19 A **Algorithms.**

20 Q Okay. Are you just talking about algorithms
21 generally? I thought we were talking more specifically?

22 A **Okay.**

23 Q I want to know about your algorithm that you
24 used, not algorithms generally.

25 A **Right. I am talking about MCMC algorithms.**

1 Q So was SMC debuted in September 2017?

2 A **What do you mean by SMC?**

3 Q Sequential Monte Carlo algorithms.

4 A **I don't know the answer to that.**

5 Q Did you use it before December 2017?

6 A **I can't specifically remember.**

7 Q I'm sorry. SMC. Okay. I understand now.

8 So SMC was not developed until well after

9 December 2017; is that correct?

10 A **I can't specifically remember.**

11 Q That looks like the last -- your most recent

12 article that you were mentioning on page 33 is

13 December 2017?

14 A **Which article are you referring to here?**

15 Q Looks like Election Law Journal Volume 16,

16 December 4, 2017.

17 A **Okay. I see that article. What is your**

18 **question about that?**

19 Q Well, I guess, you know, you are saying that

20 your algorithm uses parts of SMC or relies in part on

21 SMC; is that right?

22 A **SMC is a part of the core methodology.**

23 Q But it hasn't been around for that long, and

24 you said you have been using it for five years?

25 A **What is the question?**

1 Q How have you been using it for five years if it
2 hasn't been around that long?

3 A I am just not sure I understand the question.
4 You are asking me how have I been using sequential --

5 Q Something that wasn't created when you say you
6 were using it.

7 A Okay. So you are asking me how was I using an
8 SMC in 2017? Is that -- that is the question?

9 Q Yes, that is a great question.

10 A Okay. Sure. That makes sense. I certainly
11 did not call the algorithm a Sequential Monte Carlo in
12 2017. I definitely was -- was constructing districts
13 sequentially in the sense that we now refer in the
14 literature to as Sequential Monte Carlo. But I
15 certainly did not -- did not come up with that term
16 myself.

17 Q Do you know what Wilson's algorithm is?

18 A I don't know what you are referring to.

19 Q So you don't know how Wilson's algorithm plays
20 into the MCMC technique you are using?

21 A I understand what Wilson's algorithm is
22 referring to in the context of the spanning tree portion
23 of the SMC, if that is what you are referring to.

24 Q Do you know what Wilson -- now you confused me.
25 Do you know what Wilson's algorithm is?

1 **A In the context of the spanning tree of the SMC,**
2 **sure.**

3 Q Why did you answer no when I originally asked
4 you?

5 **A I didn't know the context that you were using**
6 **that term, I am sure.**

7 Q Okay. So have you run your core methodology
8 against a sample set to validate it?

9 **A What do you mean by sample set?**

10 Q Have you done anything to validate it?

11 **A Sure. When I review the simulations using my**
12 **algorithm, I save the maps, I output the maps, and then**
13 **I look at those maps, and I make sure that those maps**
14 **are actually random, that they are doing what I**
15 **programmed the algorithm to do, and I make sure I save**
16 **that work. So that is how I look at the maps that are**
17 **being produced by the algorithm.**

18 Q That is the only thing you do to validate the
19 maps that you produce from the algorithm?

20 **A It is not the only thing that I do that**
21 **validates the algorithm. But I would say that saving**
22 **the work, actually looking at the maps, and analyzing**
23 **those maps are part of what I do.**

24 Q And what are you looking for specifically when
25 you do that?

1 **A Certainly, when I -- I look for a lot of**
2 **things. Obviously I am looking to make sure that the**
3 **algorithm actually saves maps and outputs them. I look**
4 **at the maps and certainly I look to make sure that they**
5 **are not duplicates. I look to make sure that the maps**
6 **are actually producing districts that are equally**
7 **populated. There are any number of things that I would**
8 **do to just check the work. But, certainly, at the core**
9 **of that is just saving the maps and outputting them,**
10 **saving those map files so that they can be checked.**

11 **Q** So you saved the maps to check them and you
12 said you look for duplicates and you see if the
13 districts are equally populated. Do you do anything
14 else to validate them?

15 **A There may be a lot of other steps. I would say**
16 **those are some of the most important. Certainly, I**
17 **would look at other characteristics of them. Obviously,**
18 **I analyze them in terms of their partisanship. But**
19 **those are some of the most important things.**

20 **Q** Did you do that with the 1,000 maps that are
21 the subject of your expert report here?

22 **A Well, sure, I certainly outputted the maps,**
23 **saved the maps, saved the simulation output, I saved**
24 **those files. I check to make sure that they were**
25 **actually equally-populated districts. Those are a part**

1 **of the things that I normally check for. I guess,**
2 **necessary to that, like I said earlier, I checked the**
3 **simulated maps to make sure it is not producing a large**
4 **number of duplicates.**

5 Q Okay. So if we can look back at page 33 of
6 your expert report, which were the articles that you
7 said were peer reviewed.

8 A Okay. The one -- when we were talking about
9 this page earlier, I pointed you to two articles.

10 Q Yes.

11 A It is the California Law Review article, and
12 then there is in 2021 -- there is a Yale Law Journal
13 article in 2021.

14 Q Those are peer reviewed? I actually went to
15 California -- University of California Law School. And
16 I didn't realize that law review articles are peer
17 reviewed.

18 A It is my understanding that they are. My -- I
19 definitely know for sure Yale Law Journal is peer
20 reviewed. I can't say I specifically remember for sure
21 about the California review. I definitely know for sure
22 Yale -- I'm sorry -- Yale Law Journal is peer reviewed.

23 Q I guess the other article that I referred to
24 earlier was -- or that we were talking about earlier is
25 Election Law Journal?

1 **A I am certain that Election Law Journal is peer**
2 **reviewed.**

3 Q You think that one is peer reviewed?

4 **A I am certain that Election Law Journal is peer**
5 **reviewed.**

6 Q Okay. Has your core methodology been peer
7 reviewed in any articles besides what is in your report?

8 **A I am going to ask the court reporter to repeat**
9 **that question.**

10 **(Record read.)**

11 THE WITNESS: Okay. I am going to assume that
12 when you say "besides what is in your report," you are
13 referring to my CV listing those articles?

14 BY Ms. DiRago:

15 Q Or anywhere in your report. In order for me to
16 look at these articles later, I need to know what they
17 are. So if they are all -- if they can all possibly be
18 in your report, then I don't need to ask you to list
19 them, you know.

20 **A Sure. I mean, I can certainly keep on going**
21 **back and describe other articles that are peer reviewed.**
22 **So we have talked about the Election Law Journal**
23 **article, which --**

24 Q I am just -- I just want to know if they -- you
25 don't have to list them all. We don't have to do that.

1 But I am wondering if there are any that are not listed
2 in your CV, in your report?

3 **A Okay. I gotcha. And my answer is that my CV**
4 **is complete. So it lists all of my articles.**

5 **Q Can you explain your algorithm, sort of, step**
6 **by step?**

7 **A Sure. I am going to refer you to page 6**
8 **through 9 of my report, which describes the algorithm in**
9 **considerably more detail. But I will describe it very**
10 **briefly at a higher level here. So the algorithm is**
11 **considering several criteria or several districting**
12 **considerations altogether here. And there is a process**
13 **by which it checks for these various criteria. So**
14 **obviously that starts with population equality, it uses**
15 **precinct boundaries, and it considers contiguity, and so**
16 **on, a lot of other considerations I have listed out here**
17 **in the report.**

18 **So the algorithm constructs districting**
19 **boundaries from the base geographies, the base**
20 **geographies that are inputted into the algorithm. And**
21 **at every step along the way it is constructing district**
22 **boundaries randomly, but it's checking to make sure that**
23 **these criteria are fulfilled, are actually satisfied in**
24 **the way that I have described in much more detail in the**
25 **report itself. So it is checking for these criteria.**

1 **And every step of the way it is making sure that it is**
2 **only accepting district boundaries that are actually**
3 **fulfilling these various criteria. So the sequential --**
4 **the SMC portion of the algorithm is constructing an**
5 **initial set of district boundaries that satisfy these**
6 **criteria. And it does that sequentially, district at a**
7 **time.**

8 **And then the MCMC portion of that is proposing**
9 **MCMC changes or iterations. And so these iterations are**
10 **randomly proposed, and some are accepted and some are**
11 **not. And the idea of the MCMC is to improve the plan on**
12 **compactness, which is the last of the districting**
13 **considerations here, while still at the same time**
14 **fulfilling all of these other various considerations**
15 **that I have listed out in much more detail in the**
16 **report. So that is a much more detailed description in**
17 **the report itself of exactly how each of these**
18 **considerations work, but that is the structure of the**
19 **algorithm.**

20 **Q** Okay. You didn't program the algorithm to
21 retain the cores of any districts; right?

22 **A** **The cores of which districts? I am just not**
23 **sure I heard.**

24 **Q** Of any districts?

25 **A** **Any districts. And the answer is no, I just**

1 **programmed the algorithm like I described in paragraph**
2 **9. Or -- I'm sorry -- I programmed the algorithm to**
3 **follow the considerations that are described in**
4 **paragraph 9.**

5 Q SB 1 retains 70 percent of the district's
6 cores; right?

7 A **I have no opinion.**

8 Q Okay. So does your algorithm start with an
9 enacted plan and make changes to it?

10 A **What do you mean by an enacted plan?**

11 Q A plan that has been enacted.

12 A **You are not asking me about the SB 1-enacted**
13 **plan, or are you asking me about the previous decade's**
14 **plan?**

15 Q Well, does it start with a plan and make
16 changes to it?

17 A **It does not.**

18 Q Is the first step of your algorithm to pick a
19 precinct at random from the map?

20 A **No.**

21 Q Does your algorithm grow the district until a
22 population threshold is met?

23 A **No. I mean, I will obviously qualify my**
24 **previous answer by saying of course the algorithm makes**
25 **sure that districts are, in fact, equally populated.**

1 **But you are -- based on your previous two questions, you**
2 **are describing an algorithm that is not the algorithm**
3 **that I am actually using in this expert report.**

4 Q Okay. I understand. So I'm going to put your
5 expert report back up. So I am on page 10 of your
6 expert report. And I believe pages 10, 11, and 12 are
7 three examples of computer-simulated maps that you
8 created; is that right?

9 A **I am just going to be precise. They are**
10 **examples of three computer-simulated maps that my**
11 **computer algorithm produced. Obviously, I programmed**
12 **the algorithm. I did not personally draw the maps.**

13 Q Okay. Okay. I understand that. But that is
14 fair.

15 How did you select these maps as your examples?

16 A **I did not.**

17 Q Were these the first three maps that your
18 algorithm created?

19 A **I don't believe so.**

20 Q So I'm going to take the first example. This
21 is on page 10, if I can make that smaller so you can see
22 the whole page. And in this example, Eddy and Lea
23 County are not in the same district; is that right?

24 A **I see that, yes.**

25 Q And then in the second example, Eddy and Lea

1 are not in the same county; correct?

2 **A Yes.**

3 Q In the third example Eddy and Lea County are
4 not in the same district; correct?

5 **A Yes.**

6 Q And you can look at your own report, too. I
7 don't know. If you want me to scroll, I will. It looks
8 like Eddy County has stayed in District 2 in each of
9 these plans; is that correct?

10 **A I believe so.**

11 Q So I am going to talk a little bit more about
12 the criteria to split the oil wells or at least the
13 criteria that no district has more than 60 percent of
14 the oil wells in New Mexico.

15 So assuming that it is true, and I know that
16 you are only assuming this for the purposes of this
17 deposition, and that's fine. But assuming that it is
18 true that Lea and Eddy County together make up more than
19 60 percent of New Mexico's counties so that they have to
20 be split in every one of your 1,000 maps, it is more
21 likely than not that Eddy County will stay in District 2
22 and Lea County will be in a different district; right?

23 **A I don't have an opinion on that because I**
24 **didn't analyze that question.**

25 Q Okay. So I am looking now at your first

1 example map, just sort of for reference. But you see
2 the Eddy and Lea are in the bottom-most Southeastern
3 corner of New Mexico; right?

4 **A I do.**

5 Q So to create a map that has Eddy County in one
6 district and Lea County in another district, the map is
7 probably going to have to also take Chaves and Lincoln
8 and Roosevelt and De Baca and Guadalupe out of
9 District 2; right?

10 **A Obviously, I can see that that is possible.**
11 **But I think your question used the word "is likely" -- I**
12 **believe is what you asked. And I just don't have an**
13 **opinion on that one way or another. Obviously, I can**
14 **see that the configuration you are describing is**
15 **geographically possible. But beyond that, I don't have**
16 **an opinion about your question.**

17 Q Okay. Hold on just a minute. Do you see this
18 map? This is the New Mexico district map of previous
19 2011 congressional districts.

20 **A I believe you still have got up my report. So**
21 **I think you are seeing something different.**

22 Q That is exactly what I wanted to know. There
23 we go.

24 **A Sure. I can see that you have got a different**
25 **map up here.**

1 Q Okay. So this was an exhibit in Mr. Brace's
2 expert report. Did you read Mr. Brace's expert report?

3 **A I have never received it.**

4 Q Okay. So this is -- according to him, who is a
5 defendant's expert, this is the previous map for
6 New Mexico. And he says it was enacted in 2011. So I
7 am really just using this for reference so we can see
8 where the districts were before. And so here is what --
9 this is just I wanted to explain what I was asking you
10 about. So you can see that Lea and Eddy County down at
11 the bottom there are next to each other. And then, in
12 order to split up Lea and Eddy County, either District 1
13 or District 3 is going to have to come down and absorb
14 it; right?

15 **A When you say "it," you are referring to**
16 **Lea County?**

17 Q I'm sorry. Yes.

18 **A I mean, what you are describing is certainly**
19 **one possibility. It is not the only way for that to**
20 **happen, but it is certainly one geographically possible**
21 **way.**

22 Q Did you program your algorithm to maintain
23 contiguity?

24 **A Yes, contiguity of districts is required.**

25 Q I am just trying to see if it is possible at

1 all for a map created based on your algorithm to not
2 shave off a big chunk of District 2 right there. If
3 Eddy and Lea are separated into different districts,
4 Roosevelt cannot be in the same district as Eddy;
5 correct?

6 **A I'm not able to answer that question with the**
7 **data in front of me. It is certainly geographically**
8 **possible, but I don't have the population data of the**
9 **different counties and precincts along the borders to be**
10 **able to say for sure one way or another.**

11 Q Okay. Can you explain how it would be
12 geographically possible?

13 **A Okay. Your question to me was if**
14 **hypothetically you had a map that split up Lea and Eddy,**
15 **your question was can you possibly have Roosevelt and**
16 **Eddy in the same district, could you draw a map that**
17 **places Roosevelt and Eddy in the same district? Have I**
18 **got your question right?**

19 Q Yes.

20 **A Okay. So, certainly, geographically you could**
21 **draw a district that contains both Eddy and Roosevelt**
22 **and then essentially travels around the perimeter or the**
23 **edges of the state, around all four corners,**
24 **essentially. I don't know if that is possible in terms**
25 **of equal population. I don't know what that means in**

1 **terms of the population of those districts or if you**
2 **would have to split up some counties in order to do**
3 **that. That's why I said it could be geographically**
4 **possible. But I really just don't have the population**
5 **data in the front of me here, sitting here with this map**
6 **that you have in front of you here, which has no**
7 **population data to be able to say one way or another.**

8 Q Okay. No. I understand. So what we are going
9 to have to do is -- well, yeah, see if that is possible.
10 Okay.

11 All right. Maybe we will take just another
12 ten-minute break, if that is okay with everyone?

13 MR. WILLIAMS: Sure.

14 THE VIDEOGRAPHER: The time is 4:07 p.m. We
15 are off the record.

16 (Recess.)

17 THE VIDEOGRAPHER: The time is 4:25 p.m. We
18 are back on the record.

19 BY Ms. DiRago:

20 Q Okay. Dr. Chen, thank you for your patience
21 and explaining all this stuff to me. I am going to -- I
22 have more questions for you about your algorithm. So
23 hopefully you can continue to be patient. I have got
24 several hours left. So I think we will get through it.

25 So maybe can I put up, again, your expert

1 report here on my screen. There we go. And I'm going
2 to start on page 32 of your expert report which is your
3 CV. And then down at the bottom here are your
4 publications. And I would like to know -- we can go
5 through them one by one -- which of these publications
6 we can find your algorithm in?

7 **A You are asking me, if I am understanding**
8 **correctly, which publications use a computer-simulation**
9 **algorithm, if I have got that right?**

10 Q No. Your algorithm that you used in this case.

11 **A Okay. Obviously, I am going to answer the same**
12 **way I have before, which is that every algorithm is**
13 **different from state to state because it is a different**
14 **geography, if you are studying New Mexico versus Arizona**
15 **or some other -- or Colorado or Utah. And so,**
16 **certainly, there are differences in the algorithm, when**
17 **applied to different geographies or different criteria.**
18 **So I have certainly written a number of publications**
19 **that use an algorithm and use the core methodology that**
20 **I am using in my report here. And I think I have**
21 **pointed those out to you earlier. So I am happy to**
22 **reiterate that, but I think I have answered that**
23 **question.**

24 Q Well, yeah. I just need to confirm this
25 because this is very important.

1 **A Okay. So you want me to go through the**
2 **publications and tell you which one --**

3 Q Sure. Yeah. Let's start with the first one.

4 **A Okay. I mean, the first article here, Chen and**
5 **Malhotra, that is not using a redistricting algorithm at**
6 **all.**

7 Q Okay. Perfect.

8 And the second one?

9 **A The second article is a 2010 article, that is**
10 **not using a redistricting algorithm of any sort, at all.**

11 Q Okay. What about the third one?

12 **A So same answer with this third one, it is not**
13 **using any algorithm at all.**

14 Q And the fourth?

15 **A This fourth article is using an earlier**
16 **algorithm which is quite different than the one that I**
17 **used in my report, in my expert report today.**

18 Q All right. Now, we are moving on to page 33
19 with the fifth algorithm. I'm sorry -- with the fifth
20 journal mentioned in your report.

21 **A Okay. So this fifth article, the 2014 article,**
22 **that does not use any redistricting simulations at all.**

23 Q Okay. And the sixth?

24 **A The 2015 paper, that does not use any**
25 **redistricting simulations at all.**

1 Q Seventh?

2 A **The seventh article is this 2015 article, that**
3 **does not use any redistricting simulations at all.**

4 Q And next one?

5 A **So this 2015 Election Law Journal article, that**
6 **uses an earlier algorithm. That is not really the same**
7 **core methodology as what I used in the expert report**
8 **today.**

9 Q All right. And the next one?

10 A **This 2016 article in Electoral Studies, it uses**
11 **redistricting simulations.**

12 I'm sorry. I am not sure if I was completely
13 accurate on this 2015. Let me go back to the 2015
14 Election Law Journal article. I am not sure if I
15 completely answered your question with respect to that
16 one. So the 2015 article uses redistricting
17 simulations, but it's an earlier version and not the
18 same core methodology as what I do in my expert report
19 today. I am not sure I said that right a moment ago.

20 Q I think you did. But for the record, you are
21 talking about the Chen and Rodden 2015 --

22 A **Correct.**

23 Q -- article?

24 A **Correct.**

25 Q Okay. Thank you for that.

1 So, then, going back to the next one, which is
2 Chen and Cottrell 2016?

3 **A This 2016 article -- I'm sorry, I didn't mean**
4 **to cut you off there.**

5 Q No. No. No. That is okay.

6 **A So this 2016 article in Electoral Studies, it**
7 **does use redistricting simulations. My recollection is**
8 **that at that time I would have been using a sequential**
9 **Monte Carlo algorithm. So it has some elements. It has**
10 **some of the elements that are in the algorithm that I**
11 **used for this -- for this report today. It is not quite**
12 **the same. And it is a very different sort of study of a**
13 **lot of different states and different criteria. But it**
14 **certainly has some of the elements of the Sequential**
15 **Monte Carlo that I have described earlier today here.**

16 Q Okay. And the next one, then, the
17 2017 analysis of computer-simulated districting maps for
18 the Wisconsin State Assembly, what about that one?

19 **A So my recollection there is that I believe in**
20 **the Wisconsin, obviously I produced simulations or**
21 **computer simulations here in Wisconsin. And my**
22 **recollection is that the simulations that I produced in**
23 **Wisconsin are using Sequential Monte Carlo and are using**
24 **MCMCs. So that is the two core -- the core methodology**
25 **that I have been describing earlier today in my expert**

1 **report today by using that article.**

2 Q You did use that article?

3 A **Correct.**

4 Q Okay. The next one is the Yale Law Journal,
5 that we did talk about. But maybe if would you just
6 confirm?

7 A **Sure. So that is a 2021 article, the Yale Law**
8 **Journal article. So that is a more recent article.**
9 **And, certainly, the core methodology that I use in that**
10 **article is the same core methodology that I used in my**
11 **simulations in today's expert report.**

12 Q All right. What about the next one?

13 A **Next article does not have any computer**
14 **simulations in it.**

15 Q The next one?

16 A **This last article, the 2021 California Law**
17 **Review article, same answer as before. It is using the**
18 **same core methodology that I have described today that I**
19 **used in my expert report today.**

20 Q Okay. Does your algorithm make an appearance
21 in this nonpeer-reviewed publication?

22 A **No.**

23 Q Does your --

24 (Zoom audio difficulties.)

25 THE COURT REPORTER: I'm sorry?

1 THE WITNESS: Yes.

2 THE COURT REPORTER: I'm sorry. I didn't quite
3 hear the question.

4 BY Ms. DiRago:

5 Q I asked -- I'm sorry. I think I need to maybe
6 move closer to my computer.

7 I asked if his code used spanning trees.

8 A No.

9 Q What Java command generates those spanning
10 trees?

11 A **There is not a command that does that. I code**
12 **the algorithm myself.**

13 Q So does your algorithm work by starting with a
14 blank precinct map?

15 A **I am not sure what you mean by a blank precinct**
16 **map.**

17 Q Does it start with a blank congressional map?

18 A **Again, I am not sure what you mean by blank**
19 **congressional map.**

20 Q How does it start? Tell me, like, very, very
21 beginning, like big bang, like, where does it -- what
22 does it start with? Is it just a blank? Do you start
23 with a map of New Mexico?

24 A **The algorithm begins by importing in data about**
25 **the geography of New Mexico.**

1 Q Okay. And it inputs in the data that you feed
2 it; right?

3 A Well, I have programmed the algorithm to input
4 in that data.

5 Q Okay. And then what?

6 A So the algorithm reads in -- reads in
7 geographic data, essentially. It is data describing
8 base-geographic units that will be used in the
9 simulation algorithm.

10 Q Okay. Then what?

11 A Then the algorithm sequentially creates the
12 districts.

13 Q Okay. Then what?

14 A Then the algorithm goes into an MCMC.

15 Q Okay. And that part you have already described
16 for us.

17 So how does it sequentially create the
18 districts?

19 A The algorithm goes through the base geographies
20 of New Mexico that have been imported in. And so the
21 algorithm is going to do this sequentially. And each --
22 they are essentially -- sequentially essentially means
23 there have to be two splits or two borders that are
24 drawn, and that is because there are three districts.
25 So the essence of how the algorithm -- how the

1 **Monte Carlo portion of this algorithm does this is it is**
2 **doing that randomly, but in a way to always check to**
3 **make sure that the various considerations that I have**
4 **described in the report are being fulfilled. And so it**
5 **is doing it one border at a time, so there are a couple**
6 **different steps there. But it is -- at every step of**
7 **the way it is checking to make sure that the plan that**
8 **emerges is one where -- is one in which the various**
9 **districting considerations that I have described are**
10 **being fulfilled before that is allowed.**

11 Q I understand that part.

12 Have you ever validated your core methodology
13 against a known sample set where you have all the
14 possible variations of a map to compare it to?

15 A I don't know what you mean by all possible
16 variations of the map to compare it to.

17 Q Did you know that there is a handful of data
18 sets where scientists and mathematicians have found --
19 have figured out all of the maps that can be created and
20 they use that data set to then validate redistricting
21 algorithms?

22 A In any state -- and New Mexico is a good
23 example of this, there are 2,000 precincts -- there are
24 a virtually infinite number of possible districting
25 plans that could be drawn, so you can't know the entire

1 **set of possible maps.**

2 Q But there are areas of the country where
3 mathematicians and scientists have figured out every
4 possible combination for that area; is that right?

5 **A I don't know what you are talking about. Where**
6 **is an area of the United States where mathematicians and**
7 **scientists have figured that out?**

8 Q Are you familiar with the article called "The
9 Essential Role of Empirical Validation and Legislative
10 Redistricting Simulation"?

11 **A If you want to put it in up in front of me, I**
12 **can tell you if I have seen that article. I am happy to**
13 **tell you if I have seen the article before. You have**
14 **just given me a title here.**

15 Q Yes.

16 **A I think I have seen this article before.**

17 Q It discusses you a lot, doesn't it?

18 **A I am happy to take your word for it, but I'm**
19 **not sure I specifically remember that.**

20 Q So your core methodology has never been tested
21 against a validated sample set before?

22 **A I don't know what you mean by validated sample**
23 **set. I am going to stick with my earlier testimony from**
24 **earlier today, which is that when I produce simulations,**
25 **I output the maps, I save the maps, and I look at those**

1 **maps to check them to make sure that the simulations are**
2 **valid, that they are doing what I programmed the**
3 **simulation algorithm to do.**

4 Q Okay. So I am going to read to you from this
5 article to explain it to you because it will explain it
6 to you much better than I will be able to. It says, "To
7 the best of our knowledge, the only publicly available
8 validation data set for redistricting is the 25-precinct
9 map obtained from Florida, for which Fifield, et al.
10 (2014) and Fifield, Higgins, et al. (2020) enumerated
11 all possible redistricting maps for two or three
12 contiguous districts. Other researchers have used this
13 validation data or enumeration method to evaluate their
14 own algorithms" -- for example, "Magleby and Mosesson
15 (2018); Carter et al. (2019)."

16 Have you, like these other researchers,
17 apparently, used this validation data or enumeration
18 method to evaluate your core methodology?

19 **A This 25-precinct map obtained from Florida, I**
20 **am not exactly sure what that is referring to because**
21 **Florida certainly has approximately 6,000 precincts. So**
22 **that is not describing an actual jurisdiction, in other**
23 **words. So it sounds like that is some kind of created**
24 **data, not an actual map or not an actual place.**

25 Q Okay.

1 **A So I have not -- and sorry. I am just to going**
2 **finish my answer and be brief here. So my algorithm**
3 **produces maps on actual jurisdictions, say, for example,**
4 **an actual state. And so I am not checking it by**
5 **running -- I am not validating it against a -- say, a**
6 **25-precinct map. That is not the entirety of Florida.**
7 **That is not the purpose or that is not the point of my**
8 **algorithm. And so I am not doing that.**

9 Q Is it because you are not able to do it?

10 **A No. You certainly could. I mean, I certainly**
11 **could look at or produce simulations for a not real**
12 **state. But that is not the work that I do. I use the**
13 **algorithm to produce actual maps for an actual state.**
14 **So that is what I am interested in.**

15 Q So you have never been able to validate that
16 your algorithm actually produces a wide -- a reliable
17 set of data and compare maps to; correct?

18 **A That is incorrect. I am going to stick with my**
19 **earlier answer, which is that when I use my simulation**
20 **algorithm, I am able to because I have programmed the**
21 **algorithm to output maps to save these maps, to save the**
22 **files, to save the output files, so that I can actually**
23 **look at them and I can actually check them. And**
24 **importantly, I am able to look at the entire map for the**
25 **entire state, for every map that my algorithm is**

1 **producing. I am interested in checking the entire map**
2 **for the entire state of New Mexico that my algorithm has**
3 **produced, not, say, a 25-precinct subset that is not**
4 **describing the entire state. So that is what I am**
5 **interested in doing. So that is why I do the work that**
6 **I do with producing a map for the entire state, saving**
7 **it, looking at it, and checking the entire map, and**
8 **making sure that those maps are output and saved.**

9 Q So you have never validated your maps against a
10 known sample set; right? I mean, you said you validate
11 it. But you are talking about looking at it and making
12 sure there are no duplicates, but I am talking about
13 more of a rigorous scientific validation.

14 A **Okay. My answer is that I think this is a**
15 **rigorous scientific examination that I am doing here. I**
16 **am looking at the actual maps that are produced for an**
17 **actual state. So I am sticking with my previous answer**
18 **to that question.**

19 Q How do you know that your algorithm is
20 producing a reliable set of maps?

21 A **So when I produce an algorithm, I make sure**
22 **that the map -- that those maps are outputted and saved.**
23 **And that is the most important thing. That is the most**
24 **important step I take is I save these maps and that I or**
25 **somebody else is able to look at those maps. And so I**

1 **check. I, of course, know what went into the algorithm.**
2 **But I check the actual maps. I can check, for example,**
3 **to make sure that the algorithm produced a diverse set**
4 **of maps. I check, for example, to make sure that**
5 **it is not producing duplicate maps over and over and**
6 **over again. I check to make sure that those maps are**
7 **not the same and essentially just producing the same map**
8 **in every different simulation or every run of the**
9 **simulation. Those are the things that I check for.**

10 **I, of course, check to make sure that the**
11 **populations of the districts are what I have programmed**
12 **or essentially it is drawing districts that are equally**
13 **populated. So I check the district populations. And I**
14 **check to make sure that there are not, say, significant**
15 **population deviations. And, certainly, I check other**
16 **features.**

17 **But in order to do that check, I need to look**
18 **at the actual map for the entire state of New Mexico**
19 **that the computer is producing. I have to look at the**
20 **entire state and the map that is being produced for that**
21 **entire state. So in order to do that, I need to make**
22 **sure that, one, the algorithm is actually producing,**
23 **outputting, and saving those maps; and, two, that I am**
24 **actually looking at those maps for the entire state.**
25 **That is the most important thing.**

1 Q So all that that you just mentioned that you
2 look at to validate your maps, did you do that with the
3 algorithm that you used that is referenced in the 2015
4 Election Law Journal?

5 A I don't specifically remember the steps that I
6 took for that 2015 article. I am sure I did -- I
7 produced an algorithm that actually saved or outputted
8 maps. Of course, it was a 2015 article. So that is
9 eight years ago. And I don't specifically remember
10 everything that I did. But, certainly, I would have
11 outputted the maps and looked at those maps in the ways
12 that I have described here.

13 Q Okay. But that wasn't good enough, was it?

14 A I am not understanding the question.

15 Q Well, I think you know that your -- the
16 algorithm that you used to use has been discredited by
17 your peers. So what I am trying to figure out -- and in
18 this article -- and I can -- maybe I will sort of point
19 you to what they say about it. But they really
20 recommend validating algorithms against a known sample
21 so that you understand if your output is reliable or
22 not. And that goes way beyond just eyeballing it.

23 So I guess I am asking, did you -- the same
24 methods that you used to validate your core methodology
25 now, did you use to validate your methodologies that you

1 used before that you have already testified were not
2 quite the same as what you would use now?

3 **A Okay. There is a lot there. I'm going to**
4 **answer your question. I am going to first take issue**
5 **with the premise of your question with respect to the**
6 **sentence when you used the word "discredited."**
7 **Obviously I don't agree with that, but I'm going to**
8 **answer your question.**

9 Q Okay.

10 **A So you are asking me -- if I am understanding**
11 **your question correctly, you are asking me did I**
12 **validate simulations that I produced in earlier academic**
13 **articles. And you reference a 2015 and the -- or I**
14 **think you just referenced a 2015 article. So I think**
15 **that is your question. So I will answer that question.**

16 **And I am going to stick with the same answer as**
17 **before. I obviously outputted the plans. I don't**
18 **specifically remember the steps that I took to analyze**
19 **those maps. It was a long time ago. I certainly would**
20 **have made sure that the algorithm was outputting maps.**
21 **And that is all I can really remember. I certainly**
22 **would have checked the populations of them. I don't**
23 **know if I would have been -- had the foresight back then**
24 **to check for duplicates, for example. So I don't**
25 **necessarily specifically remember all the different**

1 **steps that I took. But I obviously outputted the plans**
2 **in some way at that time.**

3 Q So this is the same article we have been
4 talking about here. And I will just read from it,
5 "Despite the widespread use of redistricting simulation
6 methods in court cases, insufficient efforts have been
7 made to examine whether or not they actually yield a
8 representative sample of all possible redistricting
9 plans in practice. Instead some assume that the
10 existing simulation works -- existing simulation methods
11 work as intended. For example, in his Amicus brief to
12 the Supreme Court in Rucho et al. v. Common Cause, Eric
13 Lander declares, 'With modern computer technology, it is
14 now straightforward to generate a large collection of
15 redistricting plans that are representative of all
16 possible plans that meet the State's declared goals.'"

17 So I will stop right there. And I guess I am
18 asking you, how do you know that your collection of
19 redistricting plans that you produced as part of your
20 expert work in the case represent all the possible plans
21 that adhere to that same criteria?

22 **A Okay. So I have two answers. One is that I**
23 **programmed the algorithm to do so. I programmed the**
24 **algorithm to follow these criteria. And so I know how**
25 **the algorithm is actually working. I actually built**

1 **the -- I programmed the algorithm myself, I wrote the**
2 **code myself, and so I know, of course, what**
3 **considerations it is following when it is drawing plans.**

4 **And, of course, in addition to that, I have**
5 **actually looked at the outputs to know that it is**
6 **producing a diverse set of plans. I can look at the**
7 **algorithm, but I can also look at the outputs. I have**
8 **saved the outputs so I look at the maps and I can see,**
9 **for example, that there are no duplicates. I can see,**
10 **for example, it is not just taking the same plan and**
11 **producing it over and over and over again. That is how**
12 **you know the randomness is actually working, in addition**
13 **to the fact that I have, of course, wrote the algorithm**
14 **myself and have written that randomness into it.**

15 **Second, you have highlighted this first**
16 **sentence here. And this is certainly a valid question**
17 **for researchers to be asking. And the question here is**
18 **specifically saying whether or not they actually yield a**
19 **representative sample of all possible redistricting**
20 **plans in practice. And, certainly, some people are --**
21 **in the academic world are interested and it is a very**
22 **valid question to ask. "What is the set? What is the**
23 **universe of all possible districting plans?"**

24 **That is obviously not the question that I am**
25 **asking here in my expert report. I am specifically**

1 **interested in plans that are pursuing very particular**
2 **goals. So what they are asking here is a little bit**
3 **different. But those are my two responses.**

4 Q So you have never compared maps that you
5 produced from your -- what did you call it -- core
6 methodology to a known sample of maps that represented
7 all the possible valid plans that could be drawn?

8 A For any -- and the answer is going to be no.
9 And it is because in any real-world jurisdiction like
10 New Mexico, there are obviously an infinite number or
11 near infinite number of possible districting plans, most
12 of them I am actually not interested in for the purpose
13 of my expert report. I am interested in those plans
14 that are actually drawn according to following the
15 criteria that I have laid out. That is what I am
16 actually interested in. And so the way to actually make
17 sure that is happening properly is to actually look at
18 the actual districting plans for the entire state, not a
19 small subset.

20 Q Well, I think you look at the small subset in
21 order to validate the algorithm. It is not because you
22 are interested in that for some case. It is to validate
23 that what your algorithm is doing is reliable.

24 Is there something you wanted to say,
25 Mr. Williams?

1 MR. WILLIAMS: No. I am just really enjoying
2 my choice of professions on this lengthy Sunday
3 afternoon.

4 BY Ms. DiRago:

5 Q It is an hour later here, so.

6 Go ahead, Dr. Chen.

7 **A I didn't hear a question, so I had nothing to**
8 **answer.**

9 Q I want to discuss your Republican Performance
10 Index that you used. You used the performance index
11 developed by Research and Polling in your maps; right?

12 **A Correct.**

13 Q And this included statewide general elections
14 from 2012, 2014, 2016, 2018, and 2020; right?

15 **A Yes.**

16 Q Was this used by the New Mexico legislature to
17 create SB 1, if you know?

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

19 Q Were you told that?

20 **A Was I told that I don't know?**

21 Q Are you serious? Were you told that the
22 performance index that you used was also used by the
23 New Mexico legislature in creating SB 1?

24 **A Okay. I gotcha. I was not given any such**
25 **information. And that's why I said I don't know.**

1 Q So in paragraph 13 you say, "The Performance
2 Index used during the 2021 redistricting cycle is simply
3 an aggregation of results of all competitive statewide
4 general elections from 2012, 2014, 2016, 2018, and
5 2020." So who used it during the 2021 redistricting
6 cycle?

7 **A The only information I have is that the**
8 **performance index formula was developed by Research and**
9 **Poling. So I guess you could say -- or I guess I could**
10 **say that I know that they developed it and -- if that**
11 **counts as using it. I don't have any information beyond**
12 **that.**

13 Q I am just asking about the sentence that says
14 "The Performance Index used during the 2021
15 redistricting cycle..." Who are you -- who used it?

16 **A Okay. So my only information, just to repeat**
17 **my answer again, is Research and Polling developed it,**
18 **so I imagine that means they used it.**

19 Q You wrote the sentence, didn't you?

20 **A What's that?**

21 Q I just want to know what you meant by that
22 sentence.

23 **A Here is my understanding is that I imagine that**
24 **Research and Polling -- well, I am not going to say I**
25 **imagine, because I don't know for sure. But it's a**

1 **formula that inputs elections. And so all I am saying**
2 **here is I am reporting that it is my understanding, my**
3 **information that the specific application of the**
4 **performance index that Research and Polling developed**
5 **and used for the 2021 redistricting cycle used these**
6 **particular five years' worth of elections. So, again,**
7 **my knowledge is simply that Research and Polling**
8 **developed it and in that sentence is obviously using it**
9 **and is obviously using these particular elections**
10 **because it is 2021.**

11 Q Did you write that sentence?

12 A **I wrote my report and, yes, I wrote the**
13 **sentence.**

14 Q And you don't remember who you meant was using
15 it?

16 MR. WILLIAMS: Objection. Argumentative.
17 Asked and answered.

18 Ms. DiRago: It has not been answered.

19 MR. WILLIAMS: It has been answered,
20 Ms. DiRago. You don't like the answer. You can badger
21 the witness.

22 (Parties speaking simultaneously.)

23 Ms. DiRago: I need to know who used it. I
24 heard, "I imagine who developed it." I am asking who
25 used it during the 2021 redistricting cycle?

1 MR. WILLIAMS: Ms. DiRago, he has answered the
2 question.

3 (Parties speaking simultaneously.)

4 Ms. DiRago: He --

5 MR. WILLIAMS: He is aware that Research and
6 Polling developed it, and they used it. If you don't
7 like his answer --

8 Ms. DiRago: Well, you know what. He didn't
9 say that.

10 (Parties speaking simultaneously.)

11 (Court reporter admonishment/interruption.)

12 Ms. DiRago: He never answered that,
13 Mr. Williams.

14 MR. WILLIAMS: He answered the question,
15 Mr. DiRago.

16 Ms. DiRago: If you want to stop sighing and
17 closing your eyes and making immature little faces, then
18 you can tell your witness to please just answer the
19 question that is asked.

20 MR. WILLIAMS: Ms. DiRago, am I making --

21 Ms. DiRago: It is not an active sentence.
22 There is no noun there. I don't know what he is talking
23 about.

24 (Parties speaking simultaneously.)

25 MR. WILLIAMS: Ms. DiRago, I don't know how you

1 do it in Chicago. But in this state we do not do
2 ad hominem attacks. So at some point you have got to
3 strap on the professionalism and stop that.

4 Ms. DiRago: You have not been professional
5 either, Mr. Williams. And you are making faces that
6 are --

7 MR. WILLIAMS: Ms. DiRago.

8 Ms. DiRago: -- distracting.

9 MR. WILLIAMS: Let's revisit this from the
10 Trende deposition. Let's be specific. What I am doing
11 to you that is unprofessional, Ms. DiRago?

12 BY Ms. DiRago:

13 Q I would like a noun of who is -- from the
14 witness, not from you, Mr. Williams.

15 Who used this performance index during the 2021
16 redistricting cycle?

17 **A Okay. I understand the question. I'm going to**
18 **stick with my answer that it is -- the information that**
19 **was given to me is that Research and Polling developed**
20 **and used this performance index.**

21 Q Thank you. Thank you very much. Okay. It
22 really wasn't anything controversial.

23 Do you know if the New Mexico legislature used
24 it to develop SB 1?

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

1 Q Did you consider any unique candidate
2 characteristics when deciding on the right performance
3 index?

4 A **Okay. I am going to answer your question, but**
5 **I need to first take issue with the premise of your**
6 **question. So the second clause of your question was**
7 **when deciding on the right performance index, and I am**
8 **taking issue with that because I did not decide on the**
9 **right performance index. So that is what I am taking**
10 **issue with. So that is my answer. I did not consider**
11 **those things because I did not choose or decide upon a**
12 **performance index.**

13 Q Did defendant's counsel give you that
14 performance index to use?

15 A **Defendant's counsel pointed me to it. The**
16 **index itself, I mean, I got in the form of data.**

17 Q I just don't -- I don't know. Sometimes I
18 guess your answers don't seem to answer my question.

19 Did defendant's counsel tell you to use that
20 Republican Performance Index?

21 A **Yes.**

22 Q Has the political landscape of New Mexico
23 changed much since 2012?

24 A **I have no opinion.**

25 Q Has the southeast corner of New Mexico gotten

1 more Republican?

2 **A I have no opinion.**

3 Q Has Albuquerque gotten more Democratic?

4 **A I have no opinion.**

5 Q I am scrolling to page 28 of your expert

6 report. Paragraph 38 is entitled "Statewide

7 Comparisons." Do you see that?

8 **A Yes.**

9 Q You say, "The histogram in Figure 5 reports the
10 number of districts in each computer-simulated plan

11 exhibiting a Republican Performance Index of 46 to 54
12 percent. Within this range of partisanship, a district

13 has relatively close to the same number of Democratic
14 and Republican voters." Do you see that?

15 **A Yes.**

16 Q Did defendant's counsel tell you to use the
17 range of 46 to 54 percent to determine -- or to use in
18 your report?

19 **A Well, defendant's counsel asked me to answer
20 that question, asked me to answer how many districts are
21 within 46 to 54 percent. So that was a question posed
22 to me. I answered it.**

23 Q Do you know why defendant's counsel chose 46 to
24 54 and not 47 to 53?

25 **A No.**

1 Q Do you believe that a Republican can just as
2 easily win a district with a Republican Performance
3 Index of 46 percent as one with a Republican Performance
4 Index of 54 percent?

5 A **I have no opinion.**

6 Q Do you believe that within a range of
7 partisanship that is 46 to 54 percent, a district has
8 relatively close to the same number of Democratic and
9 Republican voters?

10 A **Sure.**

11 Q What is that based on?

12 A **That is just basic math. Those numbers are**
13 **obviously relatively close to 50.**

14 Q So does a district have relatively close to the
15 same number of Democratic and Republican voters if the
16 Republican Performance Index is 45 to 55?

17 A **Well, it is a little bit further away, of**
18 **course. So compared to 46, 54 percent, now you are**
19 **expanding that range. And so now that is going to**
20 **obviously have some districts a little bit further away.**

21 Q So is that a yes or a no?

22 A **Well, my answer, again, is that compared to the**
23 **46-to-54 percent range, it is a little bit further away.**
24 **So if we say that one is relatively close, then this is**
25 **a little bit farther away, so not as relatively close.**

1 Q So relatively close doesn't have any kind of
2 scientific meaning to you, does it?

3 A **It is just basic math. Obviously the numbers**
4 **from 46 to 54 are relatively close to 50 than numbers**
5 **that are farther away.**

6 Q Okay. That is true.

7 And then, like, 49 to 51 would be even closer;
8 right?

9 A **Yeah.**

10 Q So this range, 46 to 54 percent, you don't have
11 any studies to back up that that is somehow an important
12 range to compare districts to, do you?

13 A **I have not studied that question myself. So I**
14 **just have no opinion.**

15 Q You will be happy to know that I have covered a
16 lot of my outline. So bear with me here.

17 Did you read Mr. Trende's report?

18 A **I read parts of it. I glanced through parts of**
19 **it. I did not read the entire thing in its entirety, so**
20 **I did not read the entire thing deeply.**

21 Q You are aware that Mr. Trende created simulated
22 maps as well; right?

23 A **I am aware that Mr. Trende reported that he**
24 **attempted to create simulated maps.**

25 Q You are aware that his expert report discusses

1 those simulated maps; right?

2 **A I am aware that Mr. Trende -- I have obviously**
3 **glanced through his report to know that he is purporting**
4 **to describe some simulated maps.**

5 Q And you know that his opinion is that SB 1
6 represents an extreme gerrymander; right?

7 **A I am not sure I recall that precise line from**
8 **his report. I'm happy to take your word for it. It**
9 **wouldn't surprise me if he said it in those sort of**
10 **words, but I just specifically remember the line where**
11 **he said that.**

12 Q So do you disagree with any of the conclusions
13 that you read in Mr. Trende's report?

14 **A Well, in general, Mr. Trende's report is**
15 **purporting to or is describing his purported**
16 **simulations. I am not really able to form an opinion**
17 **about those simulations because I haven't seen them. So**
18 **I have not seen those maps. And so, just as a general**
19 **matter, I can't really form -- or I haven't formed any**
20 **opinions about a lot of those conclusions that you are**
21 **talking about of Mr. Trende's. I just haven't seen the**
22 **maps. I really want to see the maps, but I have not**
23 **seen them.**

24 Q Did you run his code?

25 **A I looked at his code. I did not run his code.**

1 Q Why not?

2 A **I wasn't asked to do so by defense counsel.**

3 Q So you say you would love to look at his maps,
4 but the way you can look at his maps is by running his
5 code; right?

6 MR. WILLIAMS: Objection. Form and foundation.

7 THE WITNESS: Yeah. No. What I meant earlier
8 is that I would love to look at Mr. Trende's actual
9 simulated maps that he actually says that he produced
10 and says that he analyzed in his expert report. Those
11 are the maps that I have not seen. So I cannot look at
12 those. I can't analyze the maps that were supposedly
13 the basis on which Mr. Trende reached his purported
14 conclusions. So I can't see those. I would love to
15 look at them because certainly there is some questions
16 that I would -- some things that I would look at with
17 those maps, but I'm not able to do that.

18 BY Ms. DiRago:

19 Q What would you look at?

20 A **I would look at a lot of things if I had access**
21 **to his maps. I mean, certainly one thing that I would**
22 **look at first, which, as I have said earlier, I almost**
23 **always look at, is population equality. My**
24 **understanding from glancing through his report is that**
25 **Mr. Trende does not even purport to produce simulated**

1 maps that have equally-populated districts. And so that
2 is certainly a very significant deviation or that is
3 certainly something that I would look at and
4 would analyze in his simulated maps.

5 But, you know, Mr. Trende states that he had
6 deviations of up to 1 percent. And that is, of course,
7 quite significant, especially in a state like in which
8 New Mexico that has a very unique political geography
9 that has Democrats really clustered in certain areas,
10 Republicans really clustered in certain areas.
11 New Mexico just has kind of a unique political geography
12 that would make it such that population deviations up to
13 2 percent from the highest to the lowest populated
14 districts could have a significant effect on the
15 partisanship of maps that are created with those
16 population deviations.

17 So that is certainly one thing that I would
18 look at. Obviously, there are many other aspects I
19 would look at in terms of Mr. Trende's simulated map or
20 the purported simulated maps. If I ever were to have
21 access to them, I would look at things like municipal
22 considerations, the Indian reservation considerations,
23 oil industry considerations. But, certainly, I would
24 look very closely at population equality. That is
25 certainly one thing that really, really strikes me as

1 **quite peculiar.**

2 Q Is there anything else besides population
3 equality, municipal considerations, Indian reservation
4 considerations, and oil industry considerations that you
5 would you look at if you could look at the maps that
6 Mr. Trende produced?

7 **A There might be other things that just aren't**
8 **occurring to me right now. That is already a pretty**
9 **long list. But, sure, there might be others. That is**
10 **just the first couple things that occurred to me.**

11 Q So I gather your testimony is that if you ran
12 the code that Mr. Trende produced, that you would not
13 produce the exact same sample of 1 million maps that
14 Mr. Trende looked at to form his expert opinion in this
15 case; right?

16 MR. WILLIAMS: Objection. Form and foundation.

17 THE WITNESS: I did not say that. What I said
18 is that I don't know. I would really love to be able to
19 look at Mr. Trende's actual simulated maps. And,
20 possibly, if I could actually look at the actual maps
21 that Mr. Trende purported to have produced on his
22 computer when he was forming his opinions in writing his
23 report, then I might possibly be able to compare them to
24 other simulated maps. But I am not able to answer that
25 question because I am not able to look at Mr. Trende's

1 actual computer-simulated maps.

2 BY Ms. DiRago:

3 Q Okay. So if you ran a code that Mr. Trende
4 produced, it would create simulated maps -- well, strike
5 that.

6 So I think I understand what you are saying
7 now, that you just don't know what Mr. Trende looked at
8 when he swears under oath that he produced 1,000 -- or
9 1 million maps, you just don't believe him; is that
10 right?

11 A **That is not what I said. I just said that I am**
12 **not able to form an opinion. So I don't know, because I**
13 **have not been able to actually look at any of**
14 **Mr. Trende's purported simulated maps. So, again, I**
15 **just don't know.**

16 Q Well, what if you just run the code and look at
17 those maps?

18 A **Same answer as before. I don't know what that**
19 **would do. But it most certainly would not allow me to**
20 **answer your previous question, because I would not have**
21 **access to or I don't currently have access. Nobody has**
22 **given me maps that Mr. Trende purported to have actually**
23 **produced from his computer. So I am just not able to**
24 **answer that question.**

25 Q But if you ran Mr. Trende's code and you

1 produced 1 million maps and you assessed those maps, you
2 could easily tell us if Mr. Trende's conclusion was
3 inaccurate; right?

4 **A Well, that was several steps. So I am going to**
5 **take those in turn. I have already said that I have not**
6 **run Mr. Trende's actual code.**

7 Q But if you did?

8 **A Sure. So, of course, I haven't. I don't**
9 **believe it would actually produce 1 million simulations.**
10 **But, again, I don't know. I don't know. But it**
11 **certainly doesn't look to me that the code would produce**
12 **1 million simulations. But even then the point is that**
13 **I do not have and have not been given Mr. Trende's**
14 **actual simulated plans that he purported to describe or**
15 **the simulations that he purported to have produced as**
16 **part of his report. So I can't compare any new**
17 **simulations to something that doesn't actually exist, at**
18 **least not in my possession. So, essentially, same**
19 **answer as before.**

20 Q So, Dr. Chen, I understand that you did not
21 receive any of the maps that Mr. Trende purports to have
22 generated from his code. I understand that. And I
23 understand that you have not ran his code. I understand
24 that. So we are good on that.

25 What I am asking -- and so you said you didn't

1 know if Mr. Trende's code would produce 1 million maps.
2 Did you think about trying to run his code to see if it
3 produced 1 million maps?

4 **A I looked at his code. I mean, it was pretty**
5 **obvious that the settings were such that it was not**
6 **producing -- it was not intended to produce 1 million**
7 **maps. It was clear that the number 1 million was not**
8 **actually typed in as an input in his code. So that is**
9 **the answer to that question.**

10 Q Okay. So did you receive the second production
11 that we made of his code that did have 1 million in it?

12 MR. WILLIAMS: Objection. Form and foundation.

13 THE WITNESS: My answer is that I have not
14 received any such code.

15 BY Ms. DiRago:

16 Q So you were not asked to run Mr. Trende's code;
17 is that correct?

18 **A That is correct.**

19 Q Do you plan on running his code?

20 **A I have no such plans right now.**

21 Q I don't mean this disrespectfully, at all. I
22 just need to understand, are you able to run his code?

23 **A I'm going to stick with my previous answer,**
24 **which is I have not been instructed to, have not**
25 **attempted to, and therefore I can't answer your**

1 **question.**

2 Q Assuming that Mr. Trende in his explanation of
3 his code and the simulation maps that he produced is
4 accurate --

5 MR. WILLIAMS: Objection. Form and foundation.

6 BY Ms. DiRago:

7 Q -- do you agree with his methodology?

8 **A I am going to ask the court reporter to repeat**
9 **the first half of that -- of that regarding the "assume**
10 **Mr. Trende" -- I'm just going to ask the court reporter**
11 **to repeat that part.**

12 **(Record read.)**

13 THE WITNESS: Okay. I'm going to answer your
14 question. But before I answer your question, I have got
15 to take issue with the premise of your question. I
16 don't mean to be difficult. But your question asked me
17 to assume something, and I have got to take issue with
18 that. So I can't really accept -- I think I can't
19 really accept what you are asking me to assume. It just
20 doesn't make sense to me. So I am just going to start
21 with that.

22 Now I'm going to answer your question. Your
23 actual substantive question was "Assuming all of that,
24 do you agree with your methodology?" Did I get the
25 wording right on that question?

1 BY Ms. DiRago:

2 Q Agree with Mr. Trende's methodology.

3 **A Okay. Right. And my answer to that question**
4 **is, putting aside what I have just said about taking**
5 **issue with the premise of your question, I cannot answer**
6 **that question because I have not been able to actually**
7 **look at a single one of Mr. Trende's purported**
8 **simulations. I would need to actually see the maps, see**
9 **the purported maps, in order to answer that question.**

10 Q All right. That is helpful. If I asked you
11 the same question, but if you agreed with his results,
12 would your answer be the same?

13 **A Yes, same answer as before. I won't waste your**
14 **time saying all those same things, but the same things**
15 **obviously apply to this question as well.**

16 Q Okay. Do you disagree with his ultimate
17 conclusion, as stated in his expert report?

18 **A What ultimate conclusion are you specifically**
19 **asking me about?**

20 Q That SB 1 is the result of a partisan
21 gerrymander?

22 **A Okay. No opinion.**

23 Q If you were going to render an expert opinion
24 about SB 1 and whether it was a partisan gerrymander,
25 what would you look at?

1 **A I was not asked to analyze that question. And**
2 **so my answer to your question is I don't know because I**
3 **have not analyzed that question.**

4 Q I know what your answer is going to be, but I'm
5 going to ask this anyway.

6 If you were going to gerrymander the New Mexico
7 congressional map to be more favorable to Democrats,
8 what would you do?

9 **A I don't know because that question has not**
10 **been -- obviously, I was not asked to analyze that**
11 **question, so I just don't know.**

12 Q Okay. I can't promise that I'm done, but I
13 would like to take another break, and hopefully we can
14 finish soon.

15 THE VIDEOGRAPHER: The time is 5:35 p.m. We
16 are going off the record.

17 (Recess.)

18 THE VIDEOGRAPHER: The time is 5:50 p.m. We
19 are back on the record.

20 Ms. DiRago: Okay. And I actually do not have
21 any more questions for you, Dr. Chen. So thank you.

22 THE WITNESS: Thank you, Ms. DiRago.

23 EXAMINATION

24 BY MR. WILLIAMS:

25 Q Dr. Chen, do you recall when Ms. DiRago was

1 asking you questions about your use of SMC, Sequential
2 Monte Carlo, algorithms?

3 **A Yes.**

4 Q And do you recall Ms. DiRago asking you
5 questions about your use of MCMC or Monte -- or excuse
6 me -- Markov Chain Monte Carlo algorithms?

7 **A Yes.**

8 Q Do you recall Ms. DiRago asking you questions
9 based upon the premise that SMC algorithms were invented
10 in 2017?

11 **A Yes.**

12 Q Isn't it true that SMC algorithms have existed
13 long prior to 2017?

14 **A Yes.**

15 Q Isn't it true that Markov Chain Monte Carlo
16 algorithms have existed long prior to 2017?

17 **A Yes.**

18 Q I want to show you what I am marking as
19 Exhibit 3 to this deposition.

20 (Exhibit 3 was marked.)

21 BY MR. WILLIAMS:

22 Q Tell me when you see that on your screen,
23 Dr. Chen.

24 **A I see that.**

25 Q Is that an Amazon page for a text on Statistics

1 for Engineering and Information Science?

2 **A Yes, it sure looks like it.**

3 Q And is that titled, "Sequential Monte Carlo
4 Methods in Practice"?

5 **A Yes.**

6 Q That is a 2001 edition, according to Amazon; is
7 that correct?

8 **A Correct.**

9 Q I am going to show you what I am marking as
10 Exhibit 4 to this deposition. Maybe I am.

11 (Exhibit 4 was marked.)

12 BY MR. WILLIAMS:

13 Q Here we go. Goodness, I have used the wrong
14 document. All right. I'm going to just show you --
15 that is what you get when you accidentally delete an
16 exhibit that you created during a deposition. All
17 right. I am going to share with you a different screen,
18 and hopefully the Amazon bot doesn't give away all of my
19 shopping history to you guys. But let's look at "Markov
20 Chain Monte Carlo in Practice." Do you see that text
21 displayed on the screen?

22 **A Yes.**

23 Q And that is a text related to the use of Monte
24 Carlo -- or excuse me -- Markov Chain Monte Carlo in
25 practice as it relates to interdisciplinary statics?

1 **A That is what it looks like, yes.**

2 Q And the publication date on that document is
3 1996?

4 **A Yes.**

5 Q Would it be fair to say, Dr. Chen, that no
6 person serious about statistics would challenge Markov
7 Chain or Sequential Monte Carlo algorithms as being peer
8 reviewed and well accepted?

9 **A Correct.**

10 Q All right. I have no further questions.

11 Ms. DiRago: Neither do I.

12 MR. WILLIAMS: We will read and sign.

13 THE VIDEOGRAPHER: Can we get transcript orders
14 on the record, please.

15 MR. WILLIAMS: E-tran for the defendants.

16 Ms. DiRago: Same for us. And can we get
17 something expedited?

18 THE COURT REPORTER: When do you need it by?

19 Ms. DiRago: What's the soonest you can get it
20 to us?

21 THE COURT REPORTER: Do you want to do this off
22 the video record?

23 Ms. DiRago: Yes.

24 THE VIDEOGRAPHER: This concludes the
25 deposition of Jowei Chen, Ph.D. We are going off the

1 record at 5:55 p.m.

2 (The deposition concluded at 5:55 p.m.)

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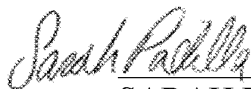
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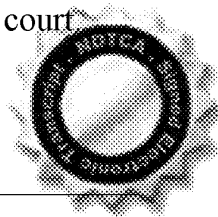
1 STATE OF NEW MEXICO
2 SS
3 COUNTY OF BERNALILLO

4 REPORTER'S CERTIFICATE

5 I, SARAH R. PADILLA, New Mexico Certified
6 Shorthand Reporter, DO HEREBY CERTIFY that I did
7 administer the oath to the witness herein prior to
8 the taking of this deposition, and that I did report
9 in stenographic shorthand the proceedings set forth
10 herein, and the foregoing is a true and correct
11 transcription of proceedings.

12 I FURTHER CERTIFY that I am neither employed by
13 nor related to any of the parties or attorneys in
14 this case, and that I have no interest whatsoever in
15 the final disposition of this case in any court

16
17 



18 SARAH R. PADILLA
19 NM Certified Court Reporter #520
20
21
22
23
24
25

1 REPUBLICAN PARTY v. MAGGIE TOLOUSE OLIVER, ET AL.

2 WITNESS SIGNATURE/CORRECTION PAGE

3 If there are any typographical errors to your
4 deposition, indicate them below:

5 PAGE LINE

6 _____ Change to _____

7 _____ Change to _____

8 _____ Change to _____

9 _____ Change to _____

10 Any other changes to your deposition are to be
11 listed below with a statement as to the reason for
12 such change.

12 PAGE LINE CORRECTION REASON FOR CHANGE

13 _____

14 _____

15 _____

16 _____

17 _____

18 _____

19 I, JOWEI CHEN, Ph.D., do hereby certify that I
20 have read the foregoing pages of my testimony as
21 transcribed and that the same is a true and correct
22 transcript of the testimony given by me in this
23 deposition on September 10, 2023, except for the
24 changes made.

22

23

24

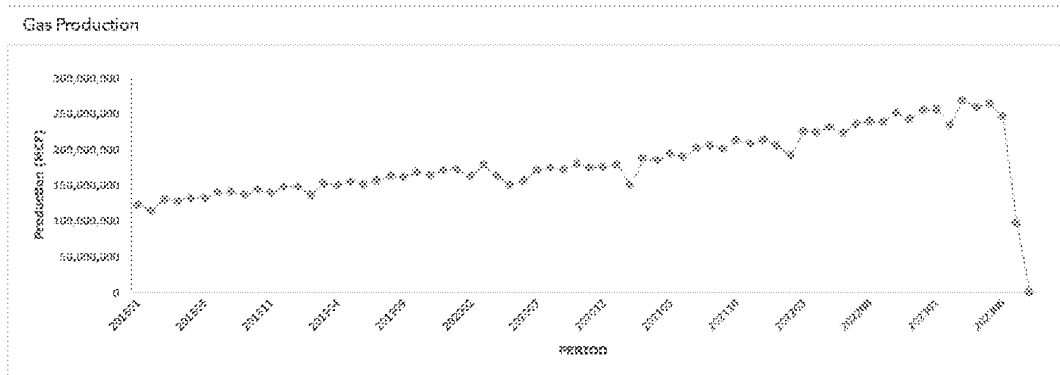
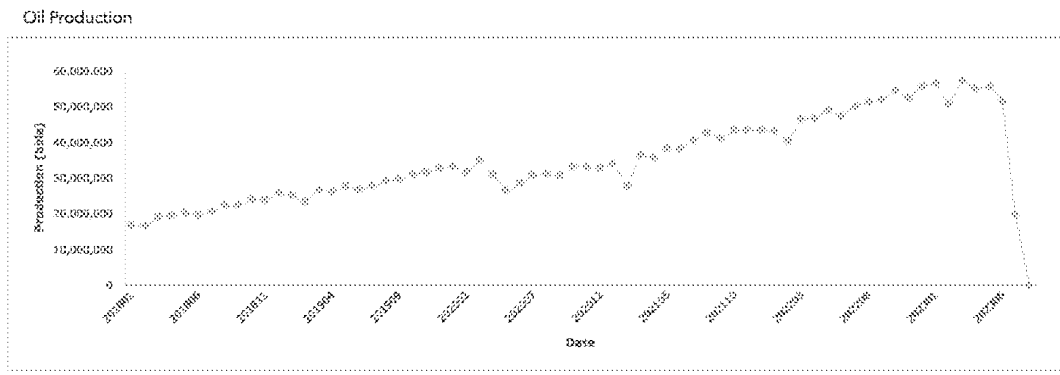
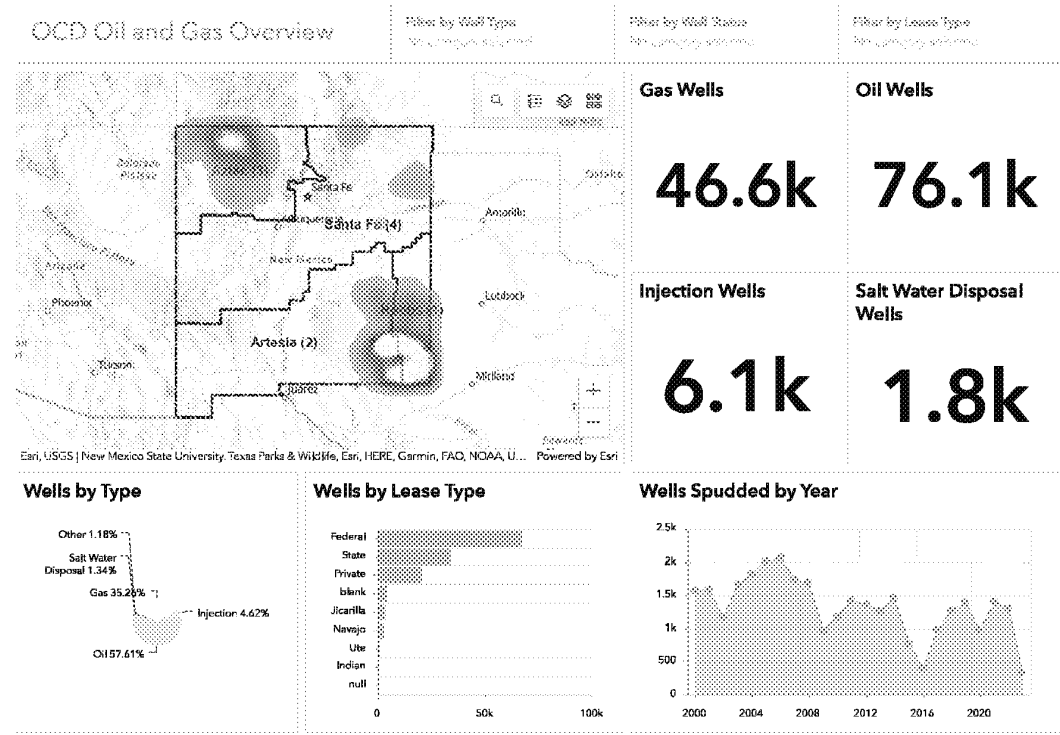
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JOWEI CHEN, Ph.D.

PLAINTIFFS' EXHIBIT 27

OCD Geospatial Hub

The Oil Conservation Division (OCD) is developing a geospatial hub providing access to interactive maps, tools, and geospatial data related to the oil and gas industry in New Mexico. This website is a work in progress and is provided as a public service for informational purposes only. Information provided within is not intended to be used as an authoritative public record for any geographic location and may not be suitable for legal, engineering, or surveying purposes.



The Oil Conservation Division (OCD) maintains well locations throughout the State of New Mexico. Well locations are based on Form C-102 (Well Location and Acreage Dedication Plat) and should be considered approximate. Corrections to well locations may be made through the local OCD District Office named within each well record.

Each well represents the surface drilling location of energy production wells (oil, gas, CO2), including injection and salt water disposal wells in New Mexico. A well point is added to this database when an Application Permit to Drill (APD) is submitted and approved. Not all wells in this dataset are active; refer to the well status attribute to determine the current status of the well.

[Download Wells](#)

New Mexico Oil Conservation Division (OCD) Oil and Gas Map

The map is made available to members of the public enabling inquiries about oil and gas wells, both active and inactive, in a spatial context relative to other land-based features such as transportation, hydrology, and land ownership. Enhanced tools allow users to:

- Filter records by well status and type, generate a formatted report of a selected record set and a map, ready for printing.
- Search for wells near a selected location, and generate turn-by-turn directions to that location.
- Generate a formatted report of a selected record set and a map, ready for printing.

Every well record contains links to additional information contained in the well records of the Oil Conservation Division.



[Access the User Guide](#)

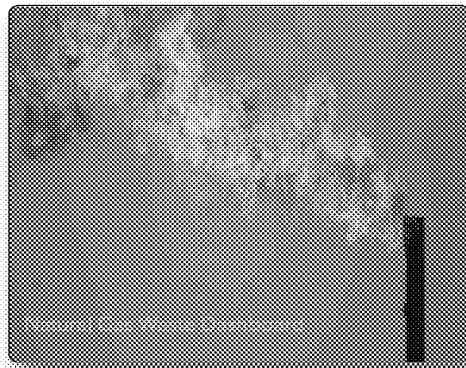
New Mexico Oil Conservation Division (OCD) Natural Gas Waste Dashboard

The OCD Natural Gas Waste Dashboard brings together the major natural gas waste data being reported to the OCD. These datasets are summarized into venting and flaring by month for comparability.

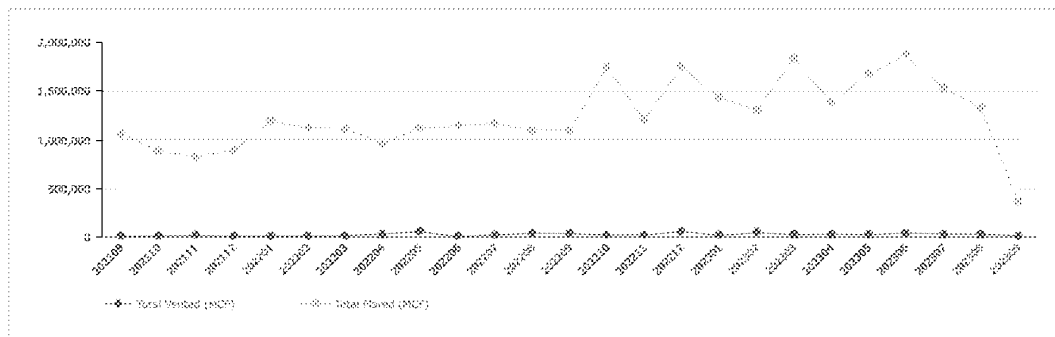
The search parameters at the top right menu can be used to filter both the map and dashboard elements by operator, reporting period and reference ID. Major data sources include:

- C-129 Venting and/or Flaring of Natural Gas Caused by an Emergency, a Malfunction or of Long Duration Report.
- C-115B Part 27 Upstream Natural Gas Waste Report.
- C-115B Part 28 Midstream Natural Gas Waste Report for Natural Gas Gathering Systems only.

Summary and detail data by well and facility are available in the Searches Menu on the OCD Permitting site.

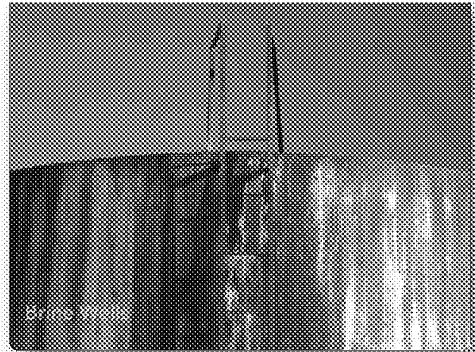


C-129 Venting and Flaring by Month



A brine well is a solution mining operation to remove salt. Fresh water is introduced into the subsurface through a well casing, thereby dissolving the salt. The brine is then pumped out and trucked to well sites for beneficial use. Historically, there are a total of 32 permitted brine well operations in New Mexico associated with oil and gas development. The oldest of these wells date back to 1963. At present, there remain nine active brine facilities. This has been a relatively cost-effective means of producing brine though it can also be made directly at the point of use by mixing dry salt with water.

Oversight of brine wells by the Oil Conservation Division is accomplished under provisions of the federal Underground Injection Control program and the New Mexico Water Quality Control Commission regulations. Both these enforcement mechanisms are concerned with the protection of groundwater.



[Access the User Guide](#)

New Mexico Methane Map

Methane from the oil and natural gas industry is emitted alongside other pollutants like volatile organic compounds (VOCs). The State of New Mexico is committed to reducing methane and VOC emissions from the oil and natural gas industry.

Available on iOS and Android, this app improves transparency by sharing with the public data from oil and natural gas regulatory agencies, including the New Mexico Environment Department (NMED) and the Energy, Minerals and Natural Resources Department (EMNRD).

[Access the User Guide](#)



EMNRD

[Home Page](#)
[Data Privacy](#)
[About NMED](#)
[Energy Information](#)

OCD

[Home Page](#)
[About](#)
[Data](#)
[Contact](#)

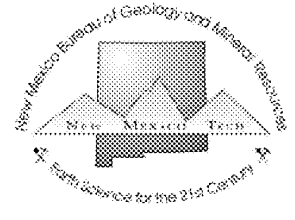
OCD GIS Coordinator

[Data Request Form](#)
[Data Request Application](#)



PLAINTIFFS' EXHIBIT 28

Frequently Asked Questions About Oil and Gas



Compiled by *Ron Broadhead and Shari Kelley*

- How do I find information on oil and gas wells drilled in New Mexico?
- Are there other sources of oil and gas well information that I may use?
- Is there a repository for cores and other well samples in New Mexico?
- How much oil and natural gas has been produced in New Mexico?
- Where are oil and gas produced in New Mexico?
- Don't oil and natural gas occur in large underground lakes, or pools?
- What is the economic impact of oil and gas production on the state of New Mexico?
- When did oil and gas production begin in New Mexico?
- OK, so oil and natural gas form an important part of our economy and provides us with fuel to heat our homes, drive our cars etc. How long will oil and gas production last in New Mexico?
- What types of natural gases are produced in New Mexico?
- Helium is also produced?
- What is helium used for, besides filling party balloons?
- Carbon dioxide production? Don't we want to get rid of carbon dioxide and not produce it?
- Who regulates the oil and gas exploration and production industry in New Mexico?
- How may I contact representatives of the oil and gas production industry?
- What roles do the independent and major producers play within New Mexico?
- What is the role of the New Mexico Bureau of Geology and Mineral Resources with respect to oil and natural gas in New Mexico?

How do I find information on oil and gas wells drilled in New Mexico?

We maintain the New Mexico Library of Subsurface Data that contains completion records for all 110,000 wells drilled for oil and natural gas in the state, as well as electric logs, sample logs, drillers logs, and other well information. Our library is a public facility that is open during the hours of 8:00 A.M. to 5:00 P.M., Monday through Friday. You may also contact us for information by contacting Amy Trivitt-Kracke. Copies of well records and well logs are available at a nominal cost. Some well logs are available in digital format.

Are there other sources of oil and gas well information that I may use?

The New Mexico Oil Conservation Division < <http://www.emnrd.state.nm.us/ocd> > (NMOCD) maintains a digital library of well logs. Although logs and well records for many New Mexico wells are available at the NMOCD website, the emphasis is on wells drilled on state and private lands. Our Subsurface Library contains substantial information on wells drilled on federal lands within the state of New Mexico. We also have logs and other information for wells drilled on state and private lands that do not appear in the NMOCD files.

Is there a repository for cores and other well samples in New Mexico?

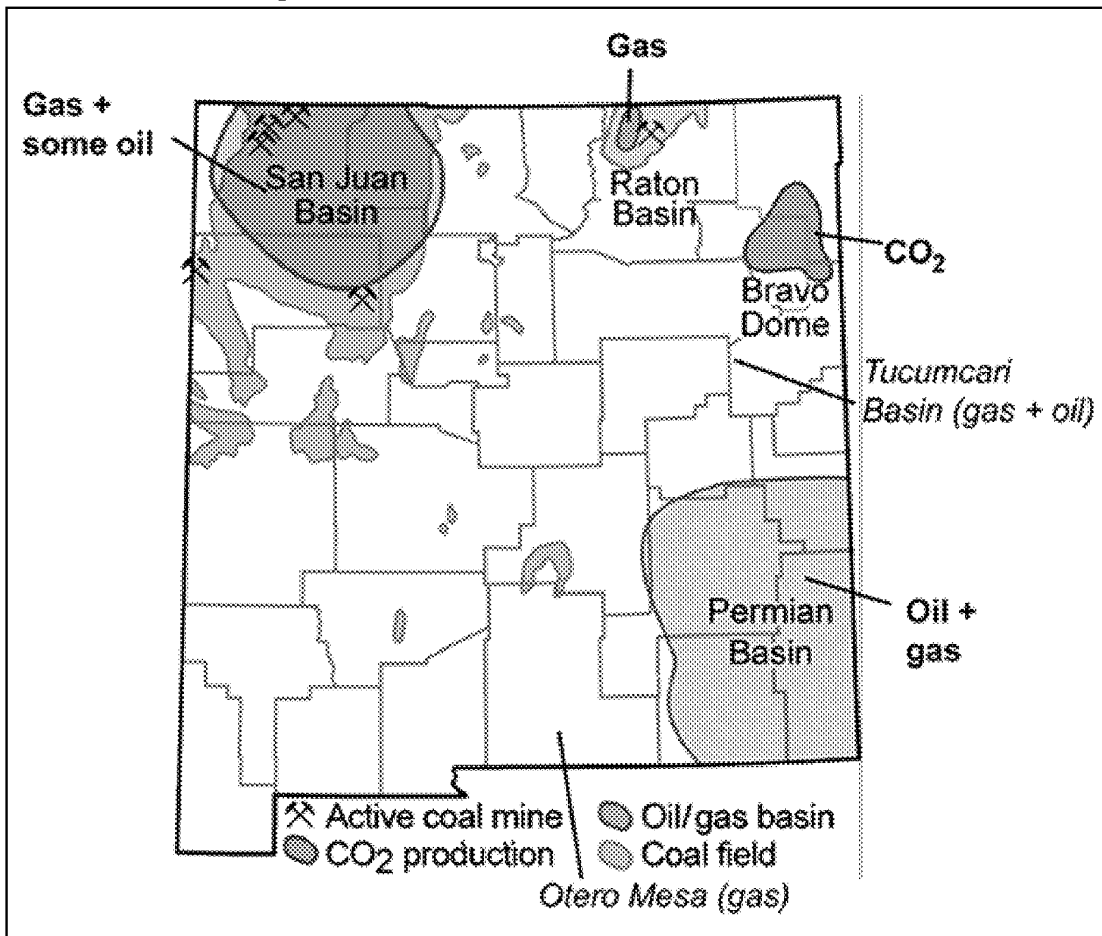
The New Mexico Bureau of Geology and Mineral Resources maintains extensive collections of cores and drill cuttings from wells drilled within New Mexico. Our data includes cores from more than 2000 oil, natural gas, minerals, coal, and geothermal wells in New Mexico and drill cuttings from 20,000 oil and natural gas exploration and production wells. All cores and cuttings samples are available for examination at no charge. For those who are unable to visit our facility, we will ship cores and cuttings for freight costs. Digital catalogs of cores and cuttings are available on request. Should you wish to examine or borrow cores or drill cuttings, please contact Annabelle Lopez.

How much oil and natural gas has been produced in New Mexico?

New Mexico ranks second in natural gas production and fifth in oil production of all states. During 2001, 69.9 million barrels of oil and 1.6 trillion cubic feet of natural gas were produced in New Mexico. You may call us at (575) 835-5402 for additional information. The New Mexico Oil Conservation Division < <http://www.emnrd.state.nm.us/ocd> > maintains some production information . Production data for individual oil and gas wells are available through the Go-Tech site < <http://octane.nmt.edu> > . The Go-Tech site contains monthly production data for oil and gas wells; they are currently working on putting historical production data into the system. Cumulative production data are not available for either individual wells or for individual oil and gas fields.

Where are oil and gas produced in New Mexico?

Production is obtained principally from two areas: the Permian Basin of Lea, Eddy, Chaves, and Roosevelt Counties in southeastern New Mexico and the San Juan Basin of San Juan, Rio Arriba, Sandoval, and McKinley Counties in northwestern New Mexico. 67% of New Mexico gas is produced from the San Juan Basin and 33% is produced from the Permian Basin. 95% of the oil is produced from the Permian Basin and 5% of the oil is produced from the San Juan Basin. Within the past few years, additional sources of gas have been discovered in the Raton Basin in northeastern New Mexico; production in this area is in its early stages and the basin may become a major contributor to production in the future. Active exploration and drilling programs are currently being conducted in currently unproductive regions, including the Tucumcari Basin in east-central New Mexico as well as in the central and southwestern parts of the state.



Don't oil and natural gas occur in large underground lakes, or pools?

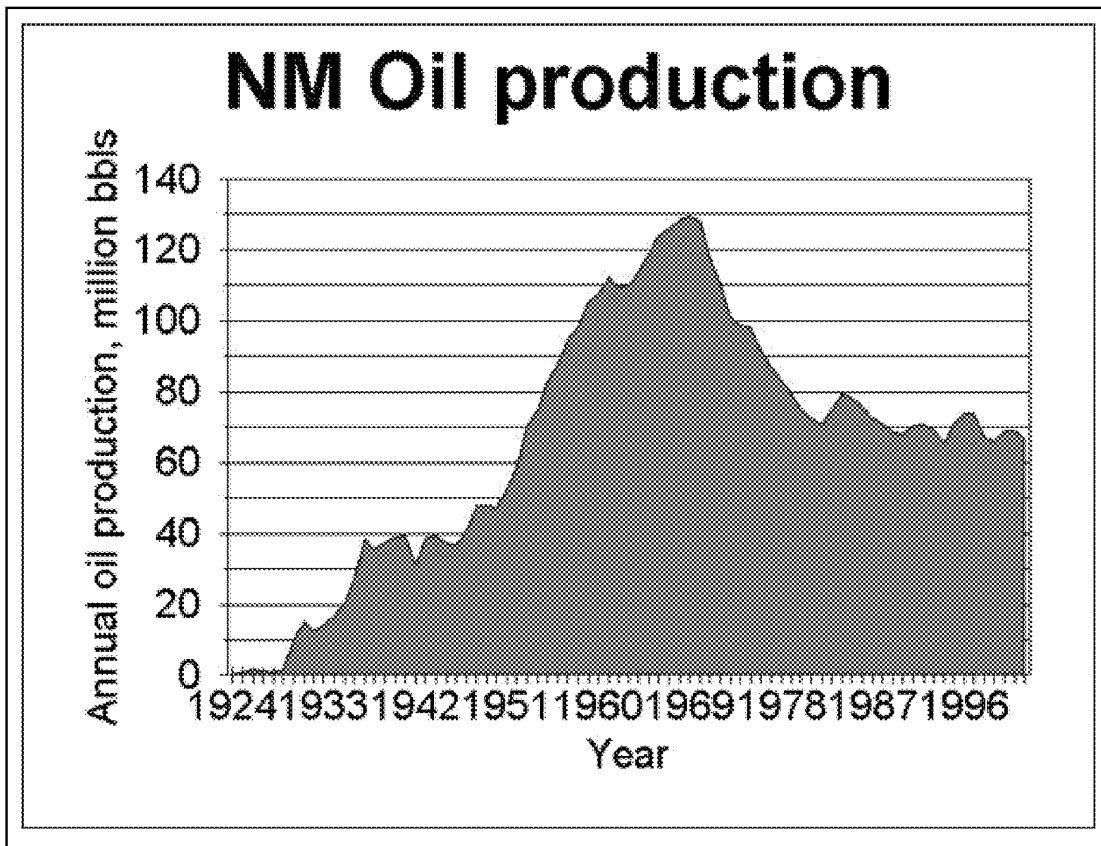
The terms oil pool and gas pool are a great source of confusion when it comes to understanding how oil and natural gas occur in the ground beneath us. Oil and gas occur in porous rocks, or reservoirs, in the ground beneath us. A complex series of natural geological processes has led to the accumulation of oil and gas in these reservoir rocks. For an introduction to this fascinating subject, please refer to our online introduction to petroleum geology. For more detailed information see our online article in the 2002 Decision Makers volume.

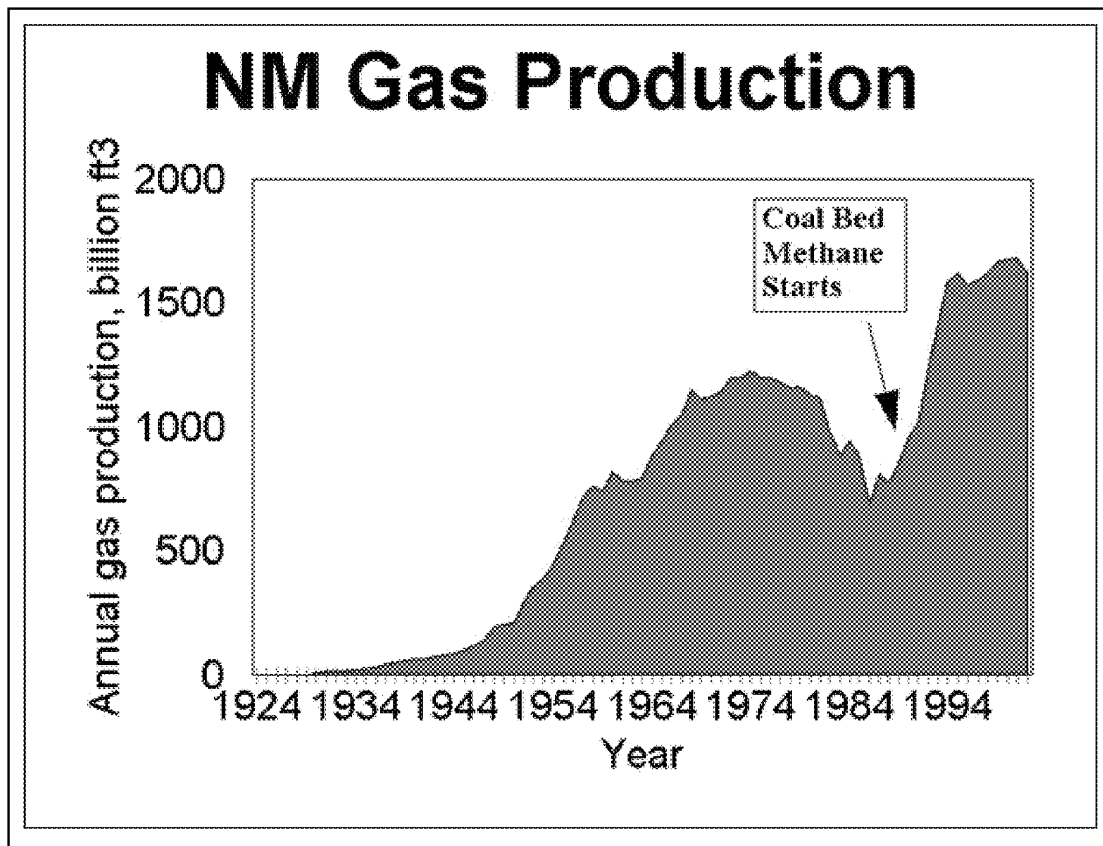
What is the economic impact of oil and gas production on the state of New Mexico?

Oil and natural gas production is a mainstay of New Mexico's economy. The value of oil and gas produced from the state during 2000 was \$8.2 billion. It is estimated that oil and natural gas production annually contributes \$1.2 billion to the state's economy. Taxes on oil and gas production contribute approximately 20% of the state's general fund. Royalties from production on New Mexico state trust lands have provided 95% of the revenues to the State Land Permanent Fund, which supports K-12 schools, universities, the Children's Hospital, and prisons and has contributed similar amounts to the Severance Tax Permanent Fund. The oil and gas industry is one of the largest private sector employers in the state with 23,000 jobs.

When did oil and gas production begin in New Mexico?

Oil and gas were first produced in New Mexico during the 1920's. Oil production peaked in the late 1960's and natural gas production is currently at its peak due to the discovery of coal gas in the San Juan Basin during the past 15 years. Before the discovery of coal gas, natural gas production in the state was in decline. The following graphs show the historical production of oil and natural gas production in New Mexico.





OK, so oil and natural gas form an important part of our economy and provides us with fuel to heat our homes, drive our cars etc. How long will oil and gas production last in New Mexico?

This is a complex question that depends on many factors including oil and gas prices, technological innovation, and the willingness to explore for and develop new sources of oil and natural gas. In general gas production from existing wells declines 50% every five years. This decline rate is somewhat less for oil. That means half of the natural gas that we use is obtained from wells drilled within the past five years. In order to replace this production new wells must be drilled. New technologies and new geological concepts can help alleviate production declines by helping to produce overlooked oil and gas or undiscovered oil and gas in old fields. Application of new, advanced technologies will become increasingly important in the future. Our recently released [Open-File Report 479](#) (Play analysis of major oil reservoirs in the “New Mexico part of the Permian Basin,” Broadhead, Ronald F., 2004, CD-ROM) discusses advanced technologies that have been used successfully to increase production from existing oil fields in New Mexico. Visit our [online article on this subject](#) for more information on the future of oil and production in New Mexico.

What types of natural gases are produced in New Mexico?

The vast majority of natural gases produced in New Mexico are hydrocarbon gas. This gas type is what most people think of when “natural gas” is mentioned—hydrocarbon gases will burn and are used to heat our homes, power factories, generate electricity, etc. Two other types of naturally occurring gases are also produced in New Mexico: carbon dioxide and helium. Naturally occurring carbon dioxide is produced from the Bravo Dome field of Union and Harding Counties in northeastern New Mexico. The carbon dioxide is transported by pipeline to the Permian Basin where it is injected into old oil fields in order to increase oil recovery from old fields that might otherwise be abandoned. The Bravo Dome field is one of the largest known naturally occurring accumulations of carbon dioxide in the world. During 2001, approximately 120 billion cubic feet of carbon dioxide worth \$51 million were produced from the Bravo Dome field. This production contributes directly to the state’s economy and tax base but also contributes indirectly by increasing oil production when injected into older oil fields.

Helium is also produced?

Natural gas that contains elevated levels of helium is also produced in New Mexico. At present, all production comes from two small fields in San Juan County in northwestern New Mexico, but there are

active exploration programs being conducted in other parts of the state as well.

What is helium used for, besides filling party balloons?

Helium gas has many important uses. It is chemically inert and has an ultra-low temperature when compressed to a liquid. It is invaluable and irreplaceable in many cryogenic applications because there is no substitute for helium where temperatures less than -429°F are required. Major uses in the United States include cryogenics, pressurizing and purging, welding, and controlled atmospheres. Leak detection and synthetic breathing mixtures are other uses. The major cryogenic use is in magnetic resonance imaging (MRI) instruments. Use as a lifting gas, including for party balloons, is minor.

Carbon dioxide production? Don't we want to get rid of carbon dioxide and not produce it?

Yes, carbon dioxide that is released to the atmosphere by combustion of fossil fuels is suspected by many scientists to contribute to global warming. At present, New Mexico Tech, in conjunction with universities from several western states, is conducting research to identify methods to remove carbon dioxide from the atmosphere (or sequester it) by isolating it at major sources. There are a number of methodologies that are under investigation for sequestration of CO_2 . Important among these are injection into abandoned gas fields or injection into old oil fields where it may be used to enhance oil recovery. Perhaps CO_2 sequestered from the atmosphere will eventually replace CO_2 produced from the Bravo Dome and other sources that is currently used for enhanced oil recovery.

Who regulates the oil and gas exploration and production industry in New Mexico?

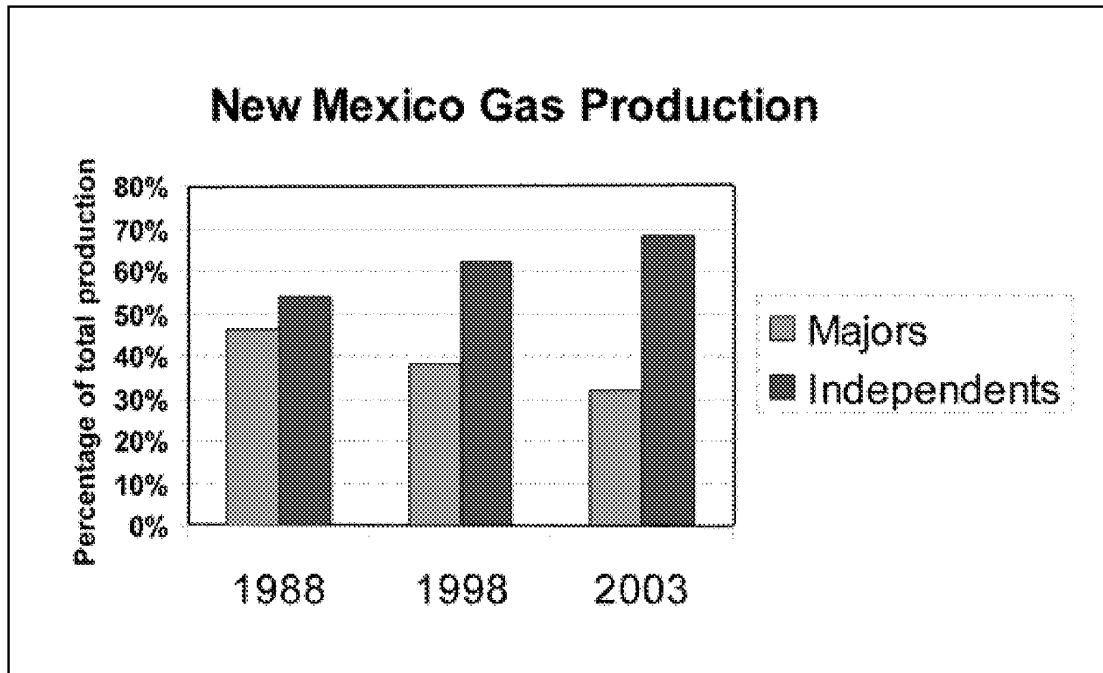
Drilling and production on New Mexico State Trust Lands and on private lands is regulated by the New Mexico Oil Conservation Division < <http://www.emnrd.state.nm.us/ocd> >. Drilling on Federal lands is regulated mostly by the United States Bureau of Land Management < <http://www.nm.blm.gov> > or the United States Forest Service < <http://www.fs.fed.us/r3/> > in national forests. Regulations are aimed at minimizing surface disturbance from drilling and production operations and safeguarding sources of drinking water, among other things.

How may I contact representatives of the oil and gas production industry?

There are two industry associations that represent the oil and natural gas production industry in New Mexico. The New Mexico Oil and Gas Association < <http://www.nmoga.org> > represents both major and smaller (independent) oil and gas exploration and production companies as well as refiners, transporters, and marketers. The Independent Petroleum Association of New Mexico < <http://www.ipanm.org> > represents the independent producers.

What roles do the independent and major producers play within New Mexico?

In the past, most oil and gas produced in New Mexico was produced by the large, or major, companies. In recent years, however, the smaller independent companies have come to produce most of the oil and gas in New Mexico. The following graph illustrates this trend.



What is the role of the New Mexico Bureau of Geology and Mineral Resources with respect to oil and natural gas in New Mexico?

We play multiple roles with respect to oil and natural gas in New Mexico. For one thing, we act as a repository for well information, including cores and drill cuttings, which may be used by anyone interested in oil and natural gas exploration and production. These data are used frequently in exploration and production activities as well as in the formulation of environmentally acceptable drilling and production strategies. Our customers range from major and independent exploration and production companies to state and federal regulatory agencies to the general public. We also undertake and publish scientific research aimed at understanding geologic controls on oil and gas occurrence and distribution within the state. Recently, this research has been funded by the U.S. Department of Energy, the New Mexico State Land Office, and the U.S. Bureau of Land Management. Recent projects range from investigating the oil and gas potential of frontier areas in east-central New Mexico to identifying applications of advanced technologies for enhancing oil production from old oil fields in southeastern New Mexico and identifying future areas of research needed for the production of unconventional gas. We have also produced research that will be very useful in the identification of helium gas resources. Like our data, the research is used to provide information and ideas that will help guide exploration and production. Our research is utilized frequently by industry as well as state and federal agencies and the general public. Assistance to exploration and production entities results in tax and royalty revenues to the state. In addition, we play a significant role in higher education by teaching courses in petroleum geology at New Mexico Tech and involving graduate and undergraduate students in our research programs. We are always willing to provide an unbiased scientific viewpoint on oil and gas matters to any who desire it.

New Mexico Bureau of Geology & Mineral Resources
New Mexico Institute of Mining & Technology
 801 Leroy Place
 Socorro, NM 87801-4796

575-835-5490

Revised: 4 May, 2022

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PLAINTIFFS' EXHIBIT 29

No. 18-422

IN THE
SUPREME COURT OF THE UNITED STATES

ROBERT RUCHO, *et al.*,
Appellants,
v.

COMMON CAUSE, *et al.*,
Appellees.

On Appeal from the United States District Court
for the District of North Carolina

BRIEF FOR THE STATES OF OREGON, CALIFORNIA,
COLORADO, CONNECTICUT, DELAWARE, HAWAII,
IOWA, KENTUCKY, MAINE, MASSACHUSETTS,
MICHIGAN, MINNESOTA, MISSISSIPPI, NEVADA, NEW
JERSEY, NEW MEXICO, NEW YORK, PENNSYLVANIA,
RHODE ISLAND, VERMONT, WASHINGTON, AND THE
DISTRICT OF COLUMBIA AS AMICI CURIAE
IN SUPPORT OF APPELLEES

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BENJAMIN GUTMAN
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(Additional counsel listed on signature page)

QUESTION PRESENTED

Does a state engage in unconstitutional partisan gerrymandering when it draws congressional districts for the purpose of long-term antimajoritarian partisan entrenchment, the new districts have that effect, and there is no justification for the districts other than maximizing partisan advantage?

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- Micah Altman & Michael McDonald, *Promise & Perils in Redistricting*, 5 Duke J. Const. L. & Pub. Pol’y, 69 (2010) 9
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- Richard L. Engstrom & Michael D. McDonald, *Quantitative Evidence in Vote Dilution Litigation: Political Participation and Polarized Voting*, 17 Urb. Law. 369 (1985) 10
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INTEREST OF THE AMICI STATES

This case is about how to strike the right constitutional balance between ensuring fair elections and respecting the normal political process. The amici States are uniquely qualified to assist the Court in striking that balance. We have a strong interest in ensuring that our elections reflect core democratic principles. Many of us are also defendants in redistricting litigation and have an equally strong interest in ensuring that the courts apply reasonable and manageable legal standards in cases like this one.

The States have a wealth of experience with redistricting and, as explained below, have taken a wide variety of approaches to prevent invidious partisan gerrymandering in that process. That is as it should be in our federalist system, and we do not suggest that any one approach to redistricting ought to be enshrined in constitutional law. But we are united in our conclusion that the Constitution sets outer limits on partisan gerrymandering, that those limits are judicially enforceable and do not intrude on the States' legitimate interests, and that on the facts found by the district court here, North Carolina's congressional districting map exceeded the outer limits of what is constitutional.¹

¹ Although the district court in this case relied on multiple bases to strike down the districting map, this brief focuses on the arguments under the Equal Protection Clause.

SUMMARY OF ARGUMENT

Deliberately drawing districts for the purpose of keeping one party in power for the long term, and without any neutral justification for the result, has no place in our political system. It discourages voter participation, increases distrust of government, and reduces the responsiveness of elected representatives. Technological advances have made it easier than ever for mapmakers to draw district lines solely to maximize the political power of a particular party.

A purpose-and-effects test is a manageable legal standard that prohibits the most egregious examples of partisan gerrymandering while still respecting the legitimate considerations that inform redistricting decisions. It requires proof of both invidious intent and a partisan-entrenching result that cannot be explained by neutral considerations. A proper understanding of this standard's limits should allay any fear that the standard would invalidate numerous state districting maps. The district court correctly struck down North Carolina's congressional districting map not because it failed one particular metric in a single year, but because it was invidiously intended to entrench a single party in power, it achieved that purpose and likely would continue to do so for the life of the plan, and the admitted goal of partisan entrenchment was the only explanation for the extreme partisan skew of the map.

Indeed, North Carolina's map maximized partisan advantage to a greater extent than 99 percent of all possible districting maps based on neutral criteria.

Although this Court has in the past struggled to identify “[h]ow much political motivation and effect is too much,” *Vieth v. Jubelirer*, 541 U.S. 267, 297 (2004) (plurality op.), that question should pose little difficulty where, as here, the evidence effectively amounts to a mathematical demonstration that North Carolina sought and obtained the maximum amount of partisan advantage possible and that all legitimate considerations were subordinated in pursuit of partisan advantage.

A purpose-and-effects test leaves ample room for States to continue to experiment with different approaches to redistricting. Many States have taken steps to limit or prevent partisan abuse of the redistricting process, including having nonpartisan or bipartisan groups draw the maps, banning consideration of partisan affiliation or other data in the map-making process, or requiring supermajority votes. The Constitution does not require any of these approaches, but they show that partisan politics is not an inevitable feature of redistricting.

ARGUMENT

Voting forms the foundation of our representative democracy. It serves as a vehicle for voicing preferences and for holding lawmakers accountable to constituents. No other mode of civic participation conveys the will of the people as well as voting. Extreme partisan gerrymandering threatens the benefits that our polity realizes from voting. The courts can and should play a role in protecting those benefits.

A. Extreme partisan gerrymandering harms the States and their citizens, and technological advances have made it easier to accomplish.

Gerrymandering has played a role in American politics since the early eighteenth century. *Vieth*, 541 U.S. at 274–75 (plurality op.); Samuel S.-H. Wang, *Three Tests for Practical Evaluation of Partisan Gerrymandering*, 68 Stan. L. Rev. 1263, 1266–67 (2016) (describing historical examples). Both major parties have engaged in partisan gerrymandering. *See, e.g., League of United Latin Am. Citizens v. Perry*, 548 U.S. 399, 410–13 (2006) (plurality op.) (describing Texas plans that favored Democrats at one time and Republicans at another).

But what is not a normal or accepted redistricting practice is purposefully entrenching a single political party in power for the long term under any realistic electoral scenario, regardless of whether a majority of voters support that party. Although this Court has not yet announced a standard for assessing the legality of partisan gerrymandering, it has recognized unanimously that extreme partisan gerrymandering violates the Constitution. *See Vieth*, 541 U.S. at 292–93 (plurality op.) (“We do not disagree with [the] judgment” that “severe partisan gerrymanders [are incompatible] with democratic principles”; “[t]he issue . . . is not whether severe partisan gerrymanders violate the Constitution, but whether it is for the courts to say when a violation has occurred”; “an *excessive* injection of politics is *unlawful*”) (emphasis in original); *id.* at 312 (Kennedy, J., concurring in the judg-

ment) (“If a State passed an enactment that declared ‘All future apportionment shall be drawn so as most to burden Party X’s rights to fair and effective representation, though still in accord with one-person, one-vote principles,’ we would surely conclude the Constitution had been violated.”); *id.* at 326 (Stevens, J., dissenting) (“State action that discriminates against a political minority for the sole and unadorned purpose of maximizing the power of the majority plainly violates the decisionmaker’s duty to remain impartial.”); *id.* at 343 (Souter, J., dissenting) (“[I]f unfairness is sufficiently demonstrable, the guarantee of equal protection condemns it as a denial of substantial equality.”); *id.* at 356 (Breyer, J., dissenting) (describing “a set of circumstances in which the use of purely political districting criteria could conflict with constitutionally mandated democratic requirements”); *see also Arizona State Legislature v. Arizona Indep. Redistricting Comm’n*, 135 S. Ct. 2652, 2568 (2015) (“Partisan gerrymanders, this Court has recognized, are incompatible with democratic principles.”) (quotation marks and brackets in original omitted). And a majority of this Court has never abandoned the view, established in *Davis v. Bandemer*, 478 U.S. 109, 125 (1986), that those constitutional limitations are judicially enforceable. *Vieth*, 541 U.S. at 309–10 (Kennedy, J., concurring in the judgment); *id.* at 326 (Stevens, J., dissenting); *id.* at 343 (Souter, J., dissenting); *id.* at 356 (Breyer, J., dissenting).

Extreme partisan manipulation of the redistricting process is problematic because it can effectively insulate a political party from any realistic attempt by the populace to unseat it. Sam Hirsch, *The United*

States House of Unrepresentatives: What Went Wrong in the Latest Round of Congressional Redistricting, 2 Elec. L. J. 179, 202 (2003). In other words, political control may be determined by the mapmakers, not the voters. *Id.*

Enormous improvements in computer technology have revolutionized the way in which districts can be drawn, allowing even more invidious partisan entrenchment. See Laura Royden & Michael Li, Brennan Center for Justice, *Extreme Maps* 3 (2017)² (“Technology and a growing flood of money into the redistricting process are, by broad consensus, only making the situation” of partisan gerrymandering “worse.”); Theodore R. Boehm, *Gerrymandering Revisited—Searching for a Standard*, 5 Ind. J. L. & Soc. Equality 59, 60 (2016) (“[M]odern technology has substantially facilitated a temporary majority’s ability to perpetuate its dominance of a legislative body.”). Today, mapmakers can draft and change many different proposed maps in rapid succession using electronic databases, computer software, and statistical techniques. Wang, *supra*, at 1267; see also *Vieth*, 541 U.S. at 312 (Kennedy, J., concurring in the judgment) (“Computer assisted districting has become so routine and sophisticated that legislatures, experts, and courts can use databases to map electoral districts in a matter of hours, not months.”).

Along with improvements in computer technology, “advances in communication technology have made it

² Available at <http://www.brennancenter.org/sites/default/files/publications/Extreme%20Maps%205.16.pdf> (last accessed Feb. 11, 2019).

possible to gather fine-grained data to micro-target[] district boundaries.” Micah Altman & Michael McDonald, *The Promise & Perils of Computers in Redistricting*, 5 Duke J. Const. L. & Pub. Pol’y 69, 77 (2010). States receive and store vast amounts of highly detailed data to use in redistricting—including data from the Census Bureau about race, ethnicity, age, voting history, health coverage, and work status. Catherine McCully, U.S. Bureau of the Census, *Designing P.L. 94-171 Redistricting Data for the Year 2020 Census: The View from the States* 5, 17–18, 22 (2014).³ Mapmakers can supplement the Census Bureau’s population information with election-related data including on partisan affiliation and voting history. Kenneth F. McCue, California Inst. of Tech., *Creating California’s Official Redistricting Database* 5–8 (2011).⁴

Mapmakers can use mapping programs to evaluate the effects of drawing a line in one place or the next block over, recalculating how the new districts will affect a plan’s adherence to various redistricting criteria. McCully, *supra*, at 8; see also *Brown v. Iowa Legislative Council*, 490 N.W.2d 551, 552–53 (Iowa 1992) (describing how factors can be added or removed in computer generated redistricting maps); Richard L. Engstrom & Michael D. McDonald, *Quantitative Evidence in Vote Dilution Litigation: Political*

³ Available at <https://www.census.gov/content/dam/Census/library/publications/2014/rdo/pl94-171.pdf> (last accessed Feb. 11, 2019).

⁴ Available at <http://statewidedatabase.org/d10/Creating%20CA%20Official%20Redistricting%20Database.pdf> (last accessed Feb. 11, 2019).

Participation & Polarized Voting, 17 Urb. Law. 369, 373–77 (1985) (explaining the use of regression analyses and other calculations to predict whether voters belonging to particular racial minority group vote for specific candidates). More detailed data and computer-based district mapping provide the means to create maps that “give undue advantage to whichever political party controls redistricting.” Wang, *supra*, at 1269. Thus technological tools enable States to draw and evaluate district boundaries “in exquisite details” and “enhance the possibility that gerrymandered districts may be more durable now than they were even ten years ago.” *Id.* at 1267–68.

Durable party entrenchment through extreme gerrymandering causes real, identifiable harms to the democratic system, and to individual voters. It undercuts the fundamental premise that our republican form of government is representative. Moreover, by allowing fewer competitive races, it discourages voter participation, makes the public more distrustful of government, and reduces the responsiveness of elected representatives. Boehm, *supra*, at 62; D. Theodore Rave, *Politicians As Fiduciaries*, 126 Harv. L. Rev. 671, 684–85 (2013); Daniel R. Ortiz, *Got Theory?*, 153 U. Pa. L. Rev. 459, 486–87 (2004). And it subverts the very purpose of periodic redistricting, which is to make Congress more responsive—not less responsive—to voters. Ortiz, *supra*, at 476–77 (“Nearly every special feature of the House’s design” including direct election, regular reapportionment, and frequent elections, “was meant to ensure that it, unlike the other primary structures of the federal government, was highly responsive to public sentiment.”).

Of course, there are entirely legitimate reasons why a State may have noncompetitive elections. Voters may simply prefer the policies of one party over the other overwhelmingly. Or voters with similar political views may tend to cluster in the same areas, meaning that district lines drawn based on reasonable geographic considerations will favor one particular party. Or one party may be poorly organized, leading it to field candidates who have no real chance of garnering majority support. Those circumstances by themselves are not constitutionally problematic. On the contrary, they reflect the ordinary democratic process working as it should to reflect the will of the people.

What are problematic, however, are extreme districting maps that are invidiously intended to, and do, ensure noncompetitive elections *despite* the absence of the kinds of normal political considerations described above. Those maps inflict avoidable harms on the democratic process and on individual voters, and undermine the public's trust in government. The amici States have a strong interest in preventing those harms.

B. A purpose-and-effects test is manageable and adequately accounts for the States' legitimate interests.

Any test for unconstitutional partisan gerrymandering should require proof of both invidious intent *and* the actual effect of extreme partisan entrenchment that is likely to endure through multiple election cycles and is inexplicable by neutral considera-

tions. The map at issue here fails that test, and the district court's judgment therefore should be affirmed. Properly applied, however, a purpose-and-effects test should not call into question the vast majority of state districting maps. Even a map under which one party achieved an entrenched, long-lasting partisan advantage would be constitutional unless the map was adopted with invidious intent and the effect could not be explained by neutral factors. Amici anticipate that such cases will be rare, and that under a purpose-and-effects test, the States will continue to enjoy broad latitude in conducting redistricting.

1. **Invidious intent is required and is satisfied when a map is chosen for the purpose of entrenching a party against any realistic majoritarian challenge.**

Under a purpose-and-effects test, it is not enough for a plaintiff to show that a State's districting map has the *effect* of entrenching one political party in power. Rather, the plaintiff must also show that this was the *purpose* of adopting the map.

Invidious intent is a necessary component of the constitutional standard. This Court's equal protection jurisprudence holds that a law's "disproportionate impact," standing alone, is insufficient to show a constitutional violation. *Washington v. Davis*, 426 U.S. 229, 239 (1976). Instead, "a purpose to discriminate" must be established. *Id.* (quoting *Akins v. Texas*, 325 U.S. 398, 403-04 (1945)); *cf. Cooper v. Harris*, 137 S. Ct. 1455, 1463-64 & n.1 (2017) (explaining the

required “legislative intent” showing for a claim of racial gerrymandering under the Equal Protection Clause).

And not just any consideration of voters’ political affiliation will establish *invidious* intent. In *Gaffney v. Cummings*, 412 U.S. 735, 754 (1973), for example, this Court drew a distinction between the use of political affiliation in the redistricting process to “provide a rough sort of proportional representation in the legislative halls of the State,” and its use “to minimize or eliminate the political strength of any group or party,” suggesting that the former was permissible and that the latter was not.

When it comes to proof of invidious partisan intent, however, this case is not a close one. There is no serious dispute that the map at issue here was adopted with the express purpose of maximizing Republicans’ partisan advantage to the greatest extent possible. Representative Lewis, one of the co-chairs of North Carolina’s Joint Select Committee on Congressional Redistricting, made no secret that the goal of the map was to manipulate elections to elect candidates from his favored party regardless of what the majority of voters wanted in any given election: he stated, “I think electing Republicans is better than electing Democrats. So I drew this map to help foster what I think is better for the country.” Pet. App. 24. He stated further that the map was drawn “to give a partisan advantage to 10 Republicans and 3 Democrats because [he] d[id] not believe it[would be] possible to draw a map with 11 Republicans and 2 Democrats.” Pet. App. 22. And if those statements leave

any doubt as to the purpose of the map, Representative Lewis also “acknowledg[ed] freely that this would be a political gerrymander,” which Representative Lewis believed was “not against the law.” *Id.*; *see also* Pet. App. 11, 17 (the “primar[y] goal” of co-chairs Lewis and Rucho was “create as many districts as possible” in which Republicans would likely win elections, and “partisanship considerations were the principal factor governing [the] placement of district lines within split counties”).

In carrying out that goal, co-chairs Rucho and Lewis commissioned Dr. Thomas Hofeller to draw the 2016 Plan. Dr. Hofeller used past election data to draw a map that systematically “cracked” and “packed” Democratic voters to maximize Republican voting strength and minimize Democratic voting strength. *See* Pet. App. 12-13 (“All told, Dr. Hofeller testified that he redrew Districts 2, 3, 6, 7, 8, 9, 11, and 13 to increase Republic voting strength in those districts, and, to do so, he concentrated Democratic voters in Districts 1, 4, and 12.”). Subsequent analyses of the map—which the district court credited—revealed that it “creates 3 to 4 more Republican seats than what is generally achievable” using neutral map-drawing criteria, and that is ultimately is more advantageous to Republicans than *99 percent* of all such districting plans. Pet. App. 210-11. Those analyses rest on precisely the same premise that guided Dr. Hofeller in creating the map itself—*i.e.*, the premise that “past voting behavior” as reflected in “past election results” is “the best predictor” of future election outcomes. App. 11; *see also* App. 175–77 (so noting, and explaining the difficulty in reconciling de-

defendants' argument that voter behavior should not be inferred from party affiliation with defendants' use of precisely that assumption in creating the map for the express purpose of maximizing partisan advantage in future elections).

Because it incorporates a requirement of invidious intent, a purpose-and-effects test should leave States with plenty of leeway to experiment with different approaches to redistricting. So long as a districting plan is not adopted for the specific purpose of entrenching a single party in power, there is no constitutional violation. No sophisticated statistical analysis of a state's maps is required.

2. The test also demands long-term partisan-entrenching effects that cannot be justified by other legitimate considerations.

A purpose-and-effects test also requires proof that the districting map was likely to have its intended effect: that it would ensure that one party remained in power under any likely electoral scenario regardless of shifts in voter allegiance. The court also would have to find that this effect could not be explained by any legitimate, neutral considerations, such as the State's political geography or its efforts to comply with the Voting Rights Act. *See Karcher v. Daggett*, 462 U.S. 725, 740 (1983) (identifying as legitimate considerations "making districts compact, respecting municipal boundaries, preserving the cores of prior districts, and avoiding contests between incumbent Representatives").

This attention to effects is also an appropriate part of the constitutional standard. As in other kinds of cases, a plaintiff must show “a burden, as measured by a reliable standard, on the complainants’ representational rights.” *League of United Latin Am. Citizens*, 548 U.S. at 418 (plurality op.). Thus, a districting map is not an unconstitutional partisan gerrymander unless it in fact achieves extreme, long-term partisan entrenchment.

This means that States have ample room to try different approaches to redistricting without running afoul of the Constitution. Here too, the technologies that make it easier to engage in invidious partisan gerrymandering also give the States the tools to avoid liability. States can and do use computer programs to draw multiple maps that satisfy various legitimate criteria, make detailed predictions about electoral results under a range of possible scenarios, and determine whether any particular map gives one party or the other an unfair advantage.

And even if the map a State chooses does appear to give advantage to a party, sophisticated software can help the State determine if the advantage is caused by political geography or some other legitimate consideration. In other words, it can show if the predicted effects of the map on partisan entrenchment can be explained by neutral factors, in which case the map should pass constitutional scrutiny. *Cf. Vieth*, 541 U.S. at 312–13 (Kennedy, J., concurring in the judgment) (noting that “new technologies may . . . make more evident the precise nature of the burdens

gerrymanders impose on the representational rights of voters and parties”).

Most importantly, if this Court endorses particular metrics as relevant to the effect prong of the test, States will be able to model those metrics and ensure that their maps stay within the bounds this Court sets. Of course, no single metric is likely to satisfy the effects prong by itself. As the district court explained, no one is asking the judiciary to enshrine any particular statistical measure of partisanship into the Constitution. Instead, metrics such as the efficiency gap showing that a map is an extreme partisan outlier merely “provide *evidence* that” it violates constitutional standards. Pet. App. 122. Thus, if a State’s election results in a single year yielded a high efficiency gap, that alone would not likely satisfy the effects prong. And even if it did, the map still would be upheld if the effect could be explained by something other than intentional partisan entrenchment, such as that members of one party tend to cluster more in particular parts of the State than do members of the other party, or that the State has large numbers of uncontested elections. Regardless, the same metrics that might be used as evidence in litigation can also be used prophylactically by States to ward off constitutional challenges.

In this case, the district court analyzed the effects of congressional districting map with proper deference to legitimate state interests. It found that the map, by cracking and packing voters in particular districts based on their likely support of Democratic candidates, entrenched Republican representatives in

office. Pet. App. 187. And the district court further found that that discriminatory effect is likely to persist in subsequent elections. *Id.* at 190. Those findings of the district court are amply supported by the evidence of actual election results and expert analyses of those election results. *Id.* at 187–214 (discussing statewide evidence of discriminatory effects); *id.* at 223–74 (discussing district-specific evidence of discriminatory effects). The statistical analyses showed that the partisan entrenchment achieved by the map would last at least through the life of the plan, even if a majority of voters supported non-Republican candidates at historic levels. *Id.* at 190–97. The court also found that the map’s party-entrenching effects could not be explained by any legitimate state concerns or neutral factors bearing on the apportionment process, including North Carolina’s natural political geography. *Id.* at 215–22.

Thus, the district court correctly held that the map was unconstitutional.

3. The test is not likely to invalidate many districting maps, especially in view of the steps many States have taken to prevent extreme partisan gerrymandering.

Properly applied, a purpose-and-effects standard will invalidate only the most extreme maps, like North Carolina’s 2016 congressional districting map, where all legitimate considerations are subordinated to the single goal of long-term partisan entrenchment against any realistic majoritarian challenge. Those maps lie well outside our nation’s historical tradi-

tions, and we expect that they will be rare—especially if this Court affirms here and thus makes it clear that there are constitutional limits on partisan entrenchment.

More generally, however, exclusive or near-exclusive focus on partisan ends is not an inevitable feature of redistricting. About half of the States have taken formal steps that reduce or eliminate the influence of partisan considerations on redistricting. This shows that partisan politics is not a necessary component of the redistricting process.

For example, many States require (or will soon require) congressional or state legislative districting maps to be drawn by a nonpartisan or bipartisan commission. *See, e.g.*, Alaska Const., art. 6, § 8; Ariz. Const., art. IV, pt. 2, § 1(3), 1(14); Cal. Const., art. XXI, § 1; Colo. Const. art. 5, §§ 44–48.4; Haw. Const., art. IV, §§ 2, 9; Idaho Const. art. III, § 2; Mich. Const., art. IV, § 6; Mo. Const. art. III, § 7; Mont. Const., art. V, § 14; N.J. Const., art. II, § 2, ¶ 1; N.J. Const., art. IV, § 3, ¶ 1; N.Y. Const., art. III, § 5-b; Ohio Const. art. XI, § 1; Ohio Rev. Code Ann. § 3521.01; Pa. Const. art. II, § 17; Wash. Const., art. II § 43. Even in a number of States where the legislature retains authority over redistricting, the initial task of recommending a map for legislative approval is delegated to a bipartisan committee or “advisory commission.” *See, e.g.*, Conn. Const., art. 3, § 6; Iowa Code Ann. §§ 42.1, 42.5; Me. Const., art. IX, § 24; Mass. Sen. R. 12⁵; Mass. House R. 17 & 18A⁶; R.I. Pub.

⁵ Available at <https://malegislature.gov/Laws/Rules/Senate> (last accessed Feb. 11, 2019).

Laws 2011, ch. 106, § 1; R.I. Pub. Laws 2011, ch. 100, § 1; Vt. Const., ch II, § 73; Vt. Stat. Ann. tit. 17, §§ 1904-07. It is exceptionally unlikely that a districting map drawn through a nonpartisan or bipartisan process would reflect an invidious intent to achieve long-term partisan entrenchment over other, permissible goals.

Some states (including some which employ the nonpartisan or bipartisan commissions discussed above) also have chosen to limit the use of partisan affiliation to draw district lines, as a matter of state law. Some expressly bar state officials from drawing district lines for the purpose of favoring or disfavoring a political party. *See, e.g.*, Cal. Const., art. XXI, § 2(e); Del. Code Ann. tit. 29, § 804(4); Fla. Const., art. III, §§ 20, 21(a); Haw. Rev. Stat. Ann. § 25-2(b)(1); Iowa Code Ann. § 42.4(5); Mont. Code Ann. § 5-1-115(3); N.Y. Const., art. III, § 4(c)(5); Or. Rev. Stat. § 188.010(2); Wash. Const., art. II, § 43(5). Some also prohibit officials from using political data—such as past election results or voters’ party registrations—in drawing districts. *See, e.g.*, Iowa Code Ann. § 42.4(5); Mont. Code Ann. § 5-1-115(3); *see also* Neb. Leg. Res. 102 (1st Session 2011). Arizona requires mapmakers to favor competitive districts, and prohibits the use of voting and party registration data from the initial mapping phase. Ariz. Const., art. IV, pt. 2, § 1(14)(F), 1(15). And Idaho prohibits dividing counties for the

⁶ *Available* at <https://malegislature.gov/Laws/Rules/House> (last accessed Feb. 11, 2019).

purpose of protecting a political party. Idaho Code Ann. § 72-1506.

Finally, States also have adopted procedures that make the adoption of extreme partisan gerrymanders unlikely as a practical matter. For example, some require a two-thirds supermajority to approve redistricting plans, thus making it easier for a minority party to block a plan that is unfair. Conn. Const., art. III, § 6; Me. Const., art. IV, pt. 1, § 3; *cf.* N.Y. Const., art. III, § 4(b)(1)-(3) (supermajority required only if both state legislative houses are controlled by the same party).

None of these particular steps is required as a matter of federal constitutional law. As discussed, in most States the legislature draws the district maps. These deliberative bodies can and routinely do redraw their maps free of any invidious purpose, and without presenting the risk of long-term partisan entrenchment that necessitates a judicial response. A constitutional standard prohibiting the most egregious forms of intentional partisan entrenchment therefore would still afford the States considerable leeway in their redistricting processes. It would also vindicate the core democratic principles enshrined in our Constitution.

CONCLUSION

The Court should affirm the district court's judgment.

Respectfully submitted,

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PLAINTIFFS' EXHIBIT 30

Elections by Year

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Representative in Congress

Congressional District 1

[\(Vote for One\) County Break Down](#)

This table may scroll left to right depending on the screen size of your device.

Name	Party	Early Voting	Election Day	Absentee / Provisional	Total	Percentage
Bill Tilghman	Democratic	17,059	53,473	3,311	73,843	29.5%
Andy Harris ✓	Republican	32,522	137,982	5,838	176,342	70.4%
Other Write-Ins	<u>N/A</u>	39	182	12	233	0.1%

Congressional District 2

[\(Vote for One\) County Break Down](#)

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Name	Party	Early Voting	Election Day	Absentee / Provisional	Total	P
C. A. Dutch Ruppertsberger ✓	Democratic	25,870	89,754	4,788	120,412	
David Banach	Republican	11,621	56,383	2,407	70,411	
Ian Schlakman	Green	765	4,334	227	5,326	
Other Write-Ins	<u>N/A</u>	45	149	11	205	



Congressional District 3

[\(Vote for One\) County Break Down](#)

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Name	Party	Early Voting	Election Day	Absentee / Provisional	Total	Percentage
John Sarbanes ✓	Democratic	23,784	98,356	6,454	128,594	59.5%
Charles A. Long	Republican	12,738	70,607	3,684	87,029	40.3%
Other Write-Ins	<u>N/A</u>	47	265	11	323	0.1%

Congressional District 4

(Vote for One) [County Break Down](#)

This table may scroll left to right depending on the screen size of your device.

Name	Party	Early Voting	Election Day	Absentee / Provisional	Total	Percentage
Donna F. Edwards ✓	Democratic	30,402	97,262	6,964	134,628	70.2
Nancy Hoyt	Republican	11,176	40,680	2,361	54,217	28.3
Arvin Vohra	Libertarian	430	2,204	161	2,795	1.5
Other Write-Ins	<u>N/A</u>	36	153	8	197	0.1



Congressional District 5

(Vote for One) [County Break Down](#)

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Name	Party	Early Voting	Election Day	Absentee / Provisional	Total	Percentage
Steny H. Hoyer ✓	Democratic	27,931	110,527	6,267	144,725	64.8
Chris Chaffee	Republican	11,543	65,947	3,262	80,752	31.2
Dennis L. Fritz (Write In)	Unaffiliated	39	182	6	227	0.1
Other Write-Ins	<u>N/A</u>	55	267	14	336	0.1



Congressional District 6

(Vote for One) [County Break Down](#)

This table may scroll left to right depending on the screen size of your device.

Name	Party	Early Voting	Election Day	Absentee / Provisional	Total	Percentage
John K. Delaney ✓	Democratic	12,996	76,322	5,386	94,704	49.7%
Dan Bongino	Republican	9,306	77,846	4,778	91,930	48.2%
George Gluck	Green	375	3,128	259	3,762	2.0%

Other Write-Ins	<u>N/A</u>	17	114	9	140	0.1%
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Congressional District 7

(Vote for One) [County Break Down](#)

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Name	Party	Early Voting	Election Day	Absentee / Provisional	Total	Percentage
Elijah Cummings ✓	Democratic	33,694	104,094	6,851	144,639	69.9%
Corrogan R. Vaughn	Republican	10,197	43,558	2,105	55,860	27.0%
Scott Soffen	Libertarian	991	4,815	297	6,103	3.0%
Other Write-Ins	<u>N/A</u>	41	156	10	207	0.1%



Congressional District 8

(Vote for One) [County Break Down](#)

This table may scroll left to right depending on the screen size of your device.

Name	Party	Early Voting	Election Day	Absentee / Provisional	Total
Chris Van Hollen ✓	Democratic	19,640	107,718	9,364	136,722
Dave Wallace	Republican	8,921	74,876	4,062	87,859
Lih Young (Write In)	Democratic	1	15	0	16
Andrew Jaye Wildman (Write In)	Unaffiliated	11	90	1	102
Other Write-Ins	<u>N/A</u>	47	314	37	398



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New Mexico Senate Passes CD Map Proposal

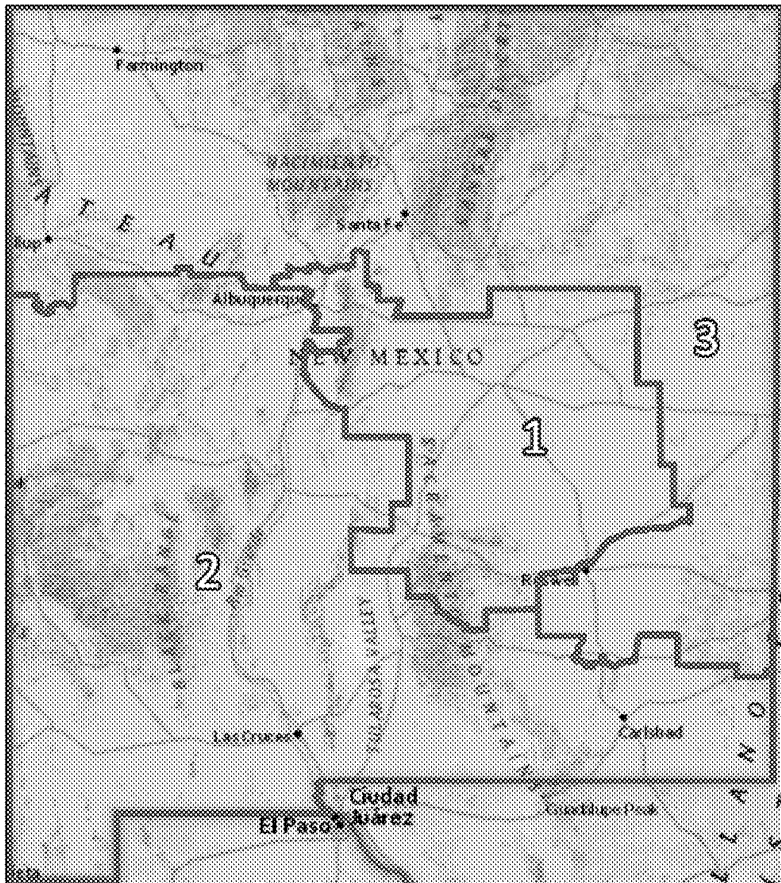
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1	765863	2	31.0%	27.5%	49.4%	3.9%	2.3%	2.6%	82.9%	-48.5%
2	765864	3	34.0%	38.1%	33.3%	4.9%	1.5%	1.2%	87.0%	-49.0%
3	765865	2	35.0%	33.7%	36.4%	16.6%	1.2%	1.2%	80.1%	-44.6%

NM SENATE News:

SANTA FE — The Special Session of the New Mexico Legislature focused Friday on redistricting.

A map proposing new boundaries for the state’s three congressional districts passed the Senate on a vote of 25-15.

The bill is sponsored by Sen. Joseph Cervantes (D-Las Cruces), Rep. Georgene Louis (D-Albuquerque and Acoma Pueblo) and Sen. Daniel Ivey-Soto (D-Albuquerque).

Sen. Cervantes issued the following statement on the passage of SB1:

“Ten years ago the New Mexico legislature was unable to reach an agreement on our congressional district maps and we ended up letting the courts draw them for us. Today we’ve taken an important step toward putting that responsibility back where it belongs – with the legislature.

This congressional map is unique in that it includes both significant urban and rural populations within each of our three congressional districts. Having our entire congressional delegation represent both urban and rural constituencies and communities will assure advocacy on behalf of every New Mexican from our entire delegation. This is a great



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opportunity for us to focus on creating unified priorities rather than exacerbating our divisions and differences.

We owe great thanks to the Citizen Redistricting Committee for everything they did to get us to this point. Through the CRC's efforts, thousands of New Mexicans took part in this process and expressed their ideas, views and opinions. Senate Bill 1 is built upon one of the CRC maps, and we would not be where we are today without that work.

Our diversity has always been our strength. Let's have our congressional delegation, and districts they represent, reflect that diversity. This is a map every New Mexico can be proud of."

The measure now goes to the House of Representatives for consideration.

SJC/SB1 can be found on the New Mexico Legislative website [here](#).



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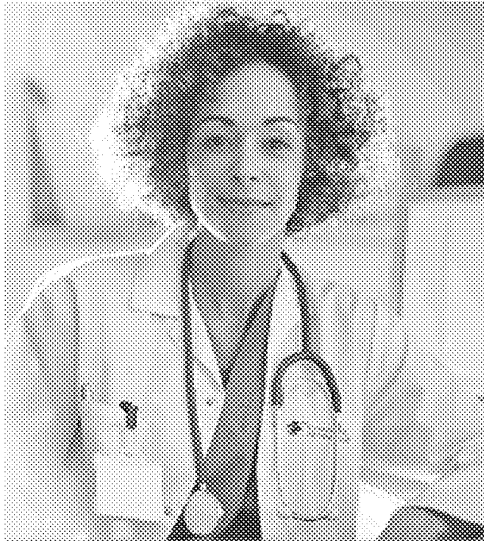
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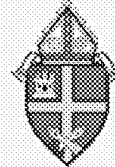
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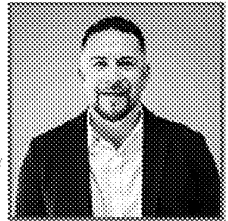
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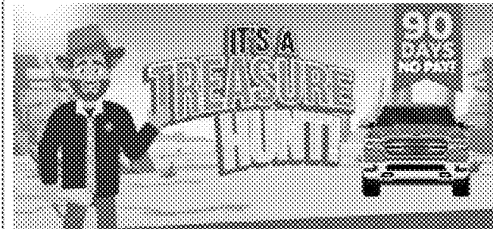
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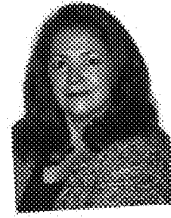


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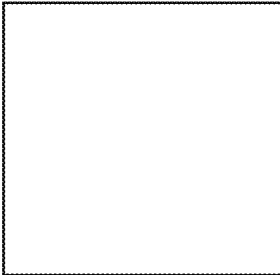
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PLAINTIFFS' EXHIBIT 32

STATE OF NEW MEXICO
COUNTY OF LEA
FIFTH JUDICIAL DISTRICT COURT

REPUBLICAN PARTY OF NEW MEXICO,
DAVID GALLEGOS, TIMOTHY JENNINGS,
DINAH VARGAS, MANUEL GONZALES,
JR., BOBBY and DEANN KIMBRO, and
PEARL GARCIA,

Plaintiffs,

vs.

No. D-506-CV-2022-00041

MAGGIE TOULOUSE OLIVER in her official capacity as New Mexico Secretary of State, MICHELLE LUJAN GRISHAM in her official capacity as Governor of New Mexico, HOWIE MORALES in his official capacity as New Mexico Lieutenant Governor and President of the New Mexico Senate, MIMI STEWART in her official capacity as President Pro Tempore of the New Mexico Senate, and JAVIER MARTINEZ in his official capacity as Speaker of the New Mexico House of Representatives,

Defendants.

**DECLARATION OF FORMER HOUSE OF REPRESENTATIVES
MINORITY FLOOR LEADER JIM TOWNSEND**

My name is James G. Townsend, I am over the age of 18 and competent to make this Declaration, and I declare under penalty of perjury the following:

1. At the time of the 2021 special session of the New Mexico Legislature, I was a duly elected Member of the House of Representatives representing Legislative District 54, which is located in Chaves, Eddy, and Otero Counties. I am a member of the Republican Party and was elected as such.

2. I was additionally the House Minority Floor Leader, who is the person elected by the Republican members of the House (collectively known as a “caucus”) to serve as their leader. This role has numerous responsibilities, both internal and external to the caucus itself, including negotiating with Democratic/majority leadership — which is headed by the Speaker of the House and the Majority Floor Leader — on the substance of many major bills. In the 2021 Second Special Session, which was limited to redistricting, that certainly included the congressional-redistricting bill known as Senate Bill 1 (“S.B. 1”).

3. S.B. 1 was sponsored by Senator Joseph Cervantes, among others, who drafted it in consultation with Democratic legislative leadership and who stated on the Senate floor that he had been hand-selected by “leadership” to “carry the bill.” Then-Representative Georgene Louis was the sole sponsor on the House side. Although it sometimes happens that bills disfavored by leadership become law, based on my knowledge and experience, and especially considering the circumstances of the bill’s movement through the legislative process, a bill like this one would have been approved if not crafted by Democratic leadership. This is especially evident when one considers that this special session only involved a handful of bills, only three of which — the redistricting bills for Congress, the Senate, and the House — were considered politically high-priority, and only two of which were meaningfully considered by any one chamber (although redistricting maps, like all legislation, must pass both chambers, by convention, the Senate does not involve itself with the House redistricting bill and vice versa).

4. Neither I nor, to my knowledge, any Republican Member of the Legislature had seen the S.B. 1 map before its introduction as legislation. Senator Cervantes stated that the map was modeled after the Citizen Redistricting Committee’s Concept H — with something in the neighborhood of a 14% deviation between the two maps — but I have no idea what the process

was that was used to either select Concept H as a starting point or to make the deviations that transformed Concept H to S.B. 1, nor do I know the specific individuals involved. This process was a closed-door, and I believe exclusively Democratic-run, one. I strongly believe that I would have known, and certainly would know now, if any Republican Member of the House had been involved in that process.

5. Once S.B. 1 was introduced, it was referred to and heard by first the Senate Rules Committee, on December 8, and then the Senate Judiciary Committee, on December 9. Republican legislators were unified in opposing the bill, as did many Democrats outside the Legislature — including current Mayor of Roswell and former Senate President Pro Tempore Tim Jennings, who testified passionately before the Senate Rules Committee — as a clear partisan gerrymander designed to elect a Democrat in all three districts. Republicans (and Mayor Jennings) were particularly offended at the cracking of the community of interest in the southeastern portion of the state into not two but all three congressional districts, although this was by no means the only complaint — for example, longtime Democratic Senator Jacob Candelaria later testified eloquently that the map’s placement of largely Hispanic populations in Albuquerque’s South Valley into the Second Congressional District was “inherently racist,” in that it pretextually relied on a supposed commonality of those individuals with Hispanics in the southern part of the state to justify disenfranchising those individuals from the ability to vote for the congressperson who would certainly have the most impact on their lives (that being the Albuquerque Metro representative).

6. These severe problems with the map were conveyed to the S.B. 1 sponsors and Democratic leadership not just by way of committee and floor testimony, but in unofficial meetings

I had with them throughout the four-day period from the start of the session to the bill's passage, which was on a pure party-line vote.

7. Democratic leadership would pretend to listen to the complaints and requests for modification I made on behalf of my caucus, and at various points would indicate a willingness to consider amending the map or addressing our concerns, but I can completely confidently say that no changes were incorporated to S.B. 1 to address any of the concerns raised by me or my Republican colleagues.

8. In fact, S.B. 1 only underwent a single change during its entire time in the Legislature, and that was the substitution of what is known as a “committee substitute bill,” which was done after the aforementioned Senate Judiciary Committee hearing. As a general proposition not specific to redistricting, committee substitutes are sometimes used to make extensive changes to a bill in circumstances when the more standard method of amending the bill — which involves specifying the page and line of amendments and stating any verbiage to be added or removed, and Legislative Council Services subsequently producing a redline version — would be unwieldy. The S.B. 1 Senate Judiciary Committee substitute, which ultimately became the passed and enacted map, did not address in any way the complaints that the Republican caucus had about the originally introduced bill. Neither I nor, as far as I am aware, any Republican Member of the Legislature was involved in the process of formulating the committee substitute, which strongly appears to have been conducted from start to finish on the afternoon and evening of December 9 and/or morning of December 10 — since the pre-substitute bill was approved at a Senate Judiciary Committee meeting that ended just before noon, with no indication given by any Democrat that a substitute bill (or indeed any amendment) was needed or even being considered. I strongly believe

that I would have known, and certainly would know now, if any Republican Member of the House had been involved in that process.

9. S.B. 1 passed the Senate and the House on a pure party-line vote of 25-15 and 44-24, respectively; this was a pure party-line vote, except that Democrat Candie Sweetser crossed the aisle and voted against the bill. No Republican Member of the Legislature supported the map, and I am not even aware of any Republican non-legislator from among the myriad witnesses who gave public comment during the session who supported the map.

10. Formal Republican efforts to amend S.B. 1 — *i.e.*, not including our continual efforts imploring Democratic leaders and sponsors off the floor — largely focused on attempting to rally support for the Citizen Redistricting Committee’s Concept E, also known as the Justice Chávez Compromise Map, which had been approved by the Committee with by far the largest support (only one dissenting vote on the seven-member Committee). Minority Whip Greg Nibert and I led these efforts on the House floor. That said, the fact that the Democrats in the Legislature did not introduce *any* of the three Committee-approved maps underscores what was widely understood both now and at the time: the primary purpose of S.B. 1, without which feature it would not have been approved by Democratic leadership, was the election of a Democrat in all three congressional districts, including specifically the southern Second District.

11. In summary, S.B. 1 was, procedurally, a completely Democratic Party project, in which Republicans were allowed to voice their ongoing and strenuous disapproval of the map, but their input was in no way whatsoever reflected in the final product.

Pursuant to Rule 1-011(B) NMRA, I hereby affirm under penalty of perjury under the laws of the State of New Mexico that this statement is true and correct. I gave this statement the 15th day of September 2023.


Representative James G. Townsend

PLAINTIFFS' EXHIBIT 33



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NEWS

Ohio's longest-serving U.S. House of Representatives members face election headwinds after redistricting

Published: Sep. 19, 2022, 11:30 a.m.



Toledo Democratic Rep Marcy Kaptur (top), and Republican JR Majewski of Port Clinton (bottom), met with voters at opposite ends of the Fulton County Fairgrounds on September 3, 2022 . (Photos by Sabrina Eaton, The Plain Dealer)

By [Sabrina Eaton, cleveland.com](https://www.cleveland.com/author/sabrina-eaton/)

WAUSEON, OH - Toledo Democratic Rep. Marcy Kaptur's congressional district has changed drastically since she was last reelected to Congress, but her campaign style remains much the same.

The Ninth Congressional District Kaptur has represented for the last decade stretches 114 miles along Lake Erie's shoreline, capturing Toledo and parts of western Cuyahoga County that made it friendly for a Democrat. Now, though, the reshaped district extends to Ohio's western border and no longer dips into Cuyahoga County. The district includes all or parts of Erie, Sandusky, Ottawa, Wood, Lucas, Fulton, Williams and Defiance counties.

And with her new district, Kaptur also faces a new challenger: Republican nominee J.R. Majewski, a Port Clinton nuclear industry veteran who has aligned himself with former President Donald Trump.

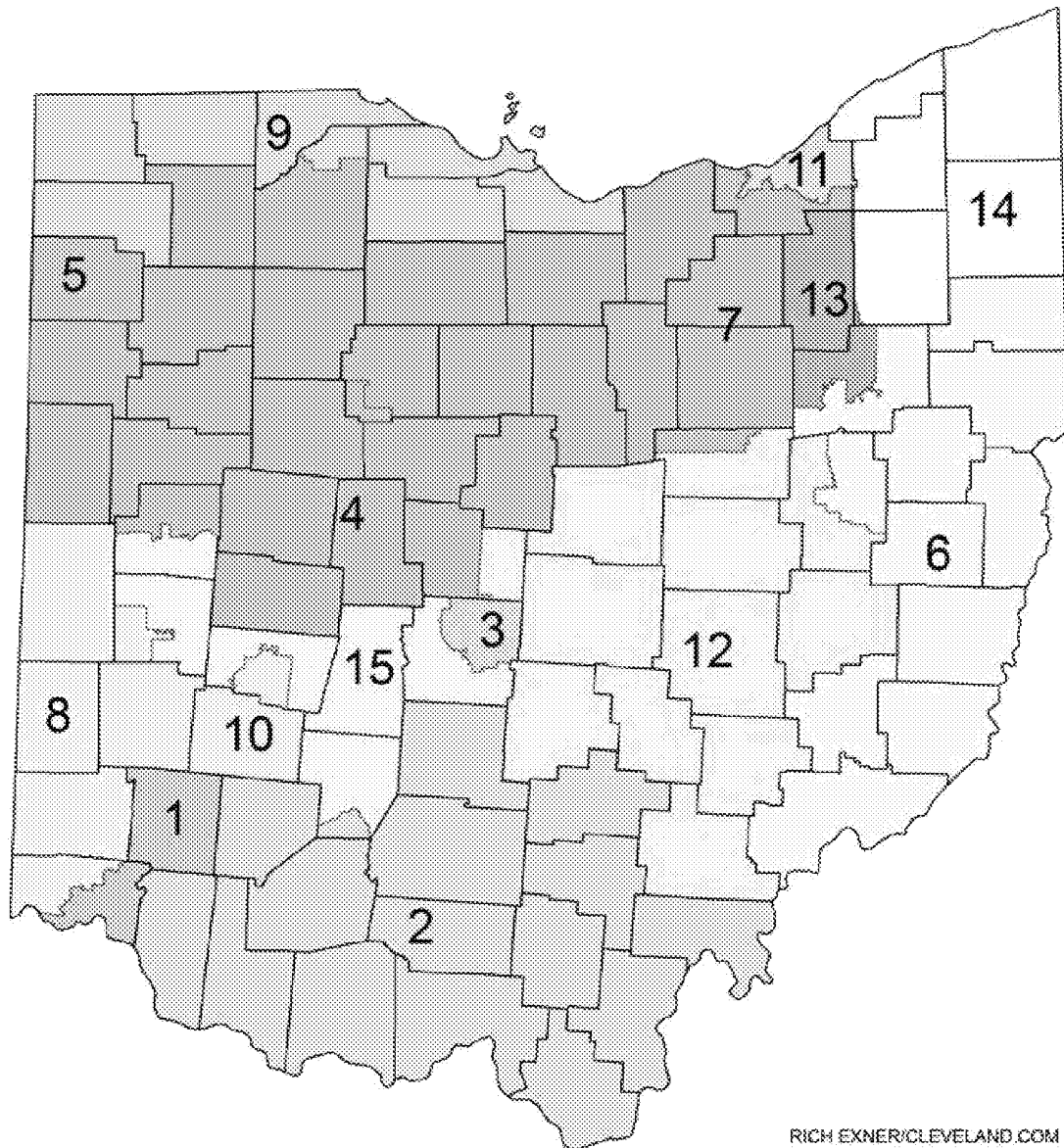
Over Labor Day weekend, the longest-serving woman in U.S. House of Representatives history wore cafeteria gloves and a straw hat with an American flag band as she handed crackers to veterans at a free bean soup luncheon at the Fulton County Fair, one of the largest in the demographically Republican district she was drawn into by GOP legislators who controlled Ohio's redistricting process.

Kaptur hopes her nearly 40 years of congressional service, her authorship of legislation that established the World War II Memorial in Washington, D.C., the attention she's devoted to regional issues like agriculture and Lake Erie water quality and the hours she's spent meeting voters at parades, county fairs and fish fries will help her prevail in a congressional district that favored Trump's re-election by a three-point margin.

"I feel very confident," Kaptur said after spending more than an hour greeting veterans on the soup line and telling them how her district was reshaped to include their hometowns. "I think people know the level of our service. But that doesn't mean we don't have to do our job, and I think the redrawing of the lines confuses people. And so one of our biggest challenges is letting people know where the district is."

If Kaptur defeats Majewski, she will surpass former U.S. Sen. Barbara Mikulski of Maryland as the longest-serving woman in the history of either congressional chamber.

2022 Ohio congressional districts



This is the Ohio congressional district map being used for the 2022 election, with 15 U.S. House seats, down from 16 in the elections from 2012 through 2020. Rich Exner, cleveland.com

In the Cincinnati-area, Ohio's longest-serving Republican in the U.S. House of Representatives, Steve Chabot, faces a similar problem after redistricting.

He was drawn into a district that gave Biden an eight-point edge during the state's redistricting process., which has spawned court challenges. The new configuration of the district Chabot represents includes all of Cincinnati, its eastern Hamilton County suburbs and all of Warren County. Chabot faces a well-funded challenge from Democratic Cincinnati City Council member Greg Landsman.

The non-partisan Cook Political report rates both Ohio races as “toss-ups,” while a recent Roll Call report listed Chabot among the nation’s 10 most vulnerable incumbents after redistricting. It left Kaptur off that list, claiming she “got a boost” because of her opponent’s extreme positions. Majewski – who first drew public attention after he painted his lawn as a giant Trump campaign sign – attended the Jan. 6 Trump rally in Washington, D. C., that preceded the Capitol Hill riot and has repeatedly distributed Q-Anon material.

While National Republican Congressional Committee Chairman Tom Emmer of Minnesota projects a Majewski victory and claims “Marcy Kaptur hasn’t done anything in 30 years,” Democratic Congressional Campaign Committee Chair Sean Patrick Maloney of New York argues Kaptur has “a great record of results.”

“Marcy Kaptur obviously got a tougher district in redistricting, but you’re talking about the longest serving woman in the House of Representatives,” added Maloney. “That’s not by accident. If you spend five minutes with Marcy Kaptur, you’ll see she’s passionate about the economic challenges facing the Midwest and returning its manufacturing jobs ... She’s coming back to Congress.”

Kaptur highlights decades of experience

Kaptur had raised close to \$1.8 million for her re-election bid as of June 30, while Majewski had collected \$456,831. She had \$1.7 million in her campaign account at the end of June, compared with \$113,154 for Majewski.

In addition to her national work on the World War II memorial, Kaptur said she’s used her post as a senior member of the House Appropriations Committee to steer federal projects worth millions of dollars to Ohio. She’s secured money to dredge harbors along Lake Erie, invest in the steel industry and Great Lakes shipbuilding and she fought to continue constructing U.S. Army tanks in Lima when some of her colleagues tried to cancel the tank contracts.

“The seniority that I hold doesn’t belong to me, it belongs to the people of this region and this district,” said Kaptur. “And I know that if I were not to be there, many of the projects underway in this region would not be completed.”

As Kaptur handed out crackers at the fair, Mike Stamm of Waseon asked to pose for pictures with her and told her he’s delighted to be able to vote for her again. He recalled stirring bean soup with her when the event first started decades ago at a time when Kaptur’s district previously included Fulton County.

Bob Vasko of nearby Williams County said he talked to Kaptur over the years when he lived in Lucas County, and said she's done a lot to keep jobs in the district and retain an [Air National Guard base in Swanton, outside Toledo.](#) He said he's delighted that her district was drawn to include his new residence. He said it won't be easy for her to win in the district "because there's a lot of Trumpers out here," but predicted "she still is going to carry the day."

One of the other volunteers helping to serve the veterans, Nick Rubel of Assumption, wore a Majewski campaign ball cap and a "Let's Go Brandon" T-shirt – a conservative rallying cry meant to insult President Joe Biden – as he stirred a soup caldron. He said he backs Majewski because both are veterans, and he believes Majewski supports gun rights and free speech more than Democrats.

"She voted lockstep with Biden," said Rubel, expressing doubts about Biden's mental competence, concern about drugs and undocumented immigrants entering the United States across its southern border, and anger at Democrats who urged defunding police departments.



GOP congressional candidate JR Majewski is travelling the district where he's seeking office in this camper.
(Photo by Sabrina Eaton, The Plain Dealer)

At the other end of the fairgrounds, Majewski greeted voters in the county's Republican party booth, wearing an American-flag themed polo shirt that bore the message "TRUMP: Keep America Great." He posed for selfies in front of a cardboard Trump, and gave away yard signs and campaign ball caps. He refused to answer questions about the campaign or his stances on issues, but allowed a reporter to listen while he spoke to voters.

His campaign literature cites his service in the U.S. Air Force. It also pledges to "put Ohio first," and protect the district's jobs, children and senior citizens. It says he wants to stop inflation, "fight big government spending," secure the nation's border, lower taxes, reform the criminal justice system and "bring back American energy." It highlights his work serving as assistant project manager when the Davis-Besse nuclear power plant's reactor vessel head was replaced.

When one voter asked his stance on cannabis legalization, Majewski said it would be up to Ohio voters and the state's legislature to make that decision. When another sought his views on keeping algal water contamination out of Lake Erie, Majewski told her he had ideas on the subject that he's not yet prepared to release.

"I feel like I spent 20 years in the nuclear power industry solving very complex issues," Majewski told her. "Cleaning an algae out of the lake is not very hard. It might be hard for Marcy and other elected officials."

Many of those who accosted Majewski asked him about television ads running in the district that suggest he participated in the Jan. 6 Capitol riot. Majewski told them he took a group of elderly veterans to Washington, D.C., that day, but avoided the riot and did not enter the Capitol building. He said the FBI interviewed him about the incident and would have pressed charges if he did anything wrong.

"I would say that Marcy's campaign activity on television is indicative of a politician that is scared to lose," Majewski told one supporter, saying his own ads will start running sometime after Labor Day. "She's never had a challenger like me and the district has always been gerrymandered in favor of the Democrats."

Rick Woodring of Matamora, who backs Majewski, opined that Kaptur "hasn't done a whole lot" in the nearly 40 years she's served in Congress, and described his candidate as "young blood," with "a lot of good ideas."

"I like that he's a veteran who fought for his country and is knowledgeable on nuclear energy," added Beverly Lung of Sylvania Township, who says she decided to volunteer for his campaign after hearing him speak.

Ron Dean, who runs a trucking company in Williams County, asked to post one of Majewski's giant signs outside his business, saying he likes Majewski's values and concern for veterans. Fred Pakulski of Liberty Center told the candidate he wants to put a Majewski yard sign on his lawn to "irritate my liberal neighbors."

Chabot, Landsman neck-and-neck in fundraising battle

In the Cincinnati-area, Chabot's Democratic challenger has raised almost as much as the incumbent as of mid-year.

Federal Election Commission reports that ran through the end of June showed Chabot had raised \$1.3 million for his re-election bid, compared with \$1.1 million for Landsman. Landsman had \$815,202 in his campaign coffers, compared with \$746,609 for Chabot. Both candidates say they're mounting grassroots campaigns, visiting church festivals and having their supporters knock on thousands of doors in an effort to win in November.

"My goal is always to work as hard as I can for the people that I represent and bring results that's going to make their lives better," says Chabot. "That's what I always focus on and that's what I am doing now."

Chabot was first elected to Congress in the 1994 Republican sweep that elevated Newt Gingrich to speaker of the House of Representatives. He left Congress for two years after losing his 2006 re-election bid to Democrat Steve Driehaus, and beat Driehaus to win back the job in 2008.

Chabot has served as chairman of the House Small Business Committee, and is among the most senior Republicans on the House Foreign Affairs Committee. He is currently the top Republican in its Asia, the Pacific, Central Asia and Nonproliferation subcommittee, and would likely become its chair if Republicans take over Congress.

"I think you're gonna see Steve Chabot defend his seat," said National Republican Congressional Committee's Emmer. "In this environment, with his record, he's gonna get reelected."

U.S. Sen. Rob Portman, a Republican who represented an adjacent Cincinnati-area congressional district before becoming a senator, described Chabot's reelection chances as "pretty good." He says he frequently sees Chabot campaigning at events in the Cincinnati area.

"No-one can out-campaign Steve Chabot," said Portman.

Chabot touts his fiscal conservatism, and has regularly introduced legislation to add a balanced budget amendment to the U.S. Constitution. He is also a vocal abortion foe who was the chief House of Representatives sponsor of a 2003 federal law that banned intact dilation and extraction abortions except in cases where the procedure is needed to save the mother's life. Chabot and other abortion opponents call the procedure "partial birth abortion." Chabot was also on the conference committee of House and Senate negotiators who hammered out final details of the CHIPS Act, which provided subsidies to the semiconductor industry that helped bring a \$20 billion Intel plant to the Columbus area.

"My record, in many ways, speaks for itself and fortunately the people of the district are pretty aware of where I stand on on issues," sais Chabot. "They know that my top goals are improving the economy and reducing inflation and keeping taxes as low as possible. Those are the economic issues that are so important to me, because they really do make so much difference to the people that I that I have the honor of representing."

Landsman, a Cincinnati council member since 2017 who previously worked as a high school Spanish and remedial math teacher, says the new district includes around 240,000 voters who weren't previously in Chabot's district. He describes the incumbent as "deeply unpopular" among Democrats, independents and even some Republicans in the new district, whom he says "want their party back and an end to all this chaos and scary stuff that Trump and Chabot and others are doing."

"Over the last couple of years, and this is true for a lot of Congressional Republicans, he has gone from being an innocuous backbencher, someone who didn't really get much done but didn't hurt folks, to being a real danger to democracy and core freedoms," says Landsman, who decries Chabot for "anti-choice extremism," and for voting against certifying Pennsylvania's 2020 presidential election vote.

"He is in serious trouble, as he should be," Landsman continues. "He is one of the few big lie anti-choice extremists that is in a competitive district."

Maloney, of the Democratic Congressional Campaign Committee, says his organization enrolled Landsman in its "Red to Blue" program to channel resources to winnable districts.

"That district is much more vulnerable than the Republicans would care to admit," says Maloney. "We have a very strong candidate. I think we're going to surprise people there."

U.S. Sen. Sherrod Brown, a Cleveland Democrat, predicts Landsman will win because “Chabot just hasn’t delivered for his district and I think Landman’s time on city council shows he will.”

Landsman, who served as executive director of a group that spearheaded establishment of a program that provides two years of preschool to Cincinnati three- and four-year-olds before joining the city’s council, said the city’s voters know he’s “a very pragmatic, proven leader who has a track record of getting really big things done in broad coalitions that have helped children and families here at home.”

“I have helped get wages up, rents down, and have ensured that our investments in public safety mean that our families are safe,” said Landsman.

Landsman says the fact that most Ohio’s congressional districts have been drawn to favor Republicans is “part of a larger assault on our democracy,” and said nobody should be stacking the deck in congressional districts, whether they’re Republicans or Democrats. He says the congressional district where he’s running should logically encompass all of Hamilton County, and Republicans who controlled the redistricting process instead cut it in two and included GOP-leaning Warren County to help Chabot.

“The biggest thing I hear from voters, is they want an end to the chaos and extremism,” says Landsman. “There is a coming together of Democrats and independents and Republicans to say, ‘Hey, we have got to be done with this craziness and elect folks who are going to uphold elections, focus on actually getting costs down, be pragmatic adults and lead without being beholden to any party and certainly not to the chaos of Trump.’”

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STATE OF NEW MEXICO
COUNTY OF LEA
FIFTH JUDICIAL DISTRICT

REPUBLICAN PARTY OF NEW MEXICO,
DAVID GALLEGOS, TIMOTHY JENNINGS,
DINAH VARGAS, MANUEL GONZALES, JR.,
BOBBY and DEE ANN KIMBRO, and
PEARL GARCIA,

Plaintiffs,

v.

Cause No.
D-506-CV-2022-00041

MAGGIE TOLOUSE OLIVER, in her official capacity
as New Mexico Secretary of State, MICHELLE LUJAN
GRISHAM, in her official capacity as Governor of New
Mexico, HOWIE MORALES, in his official capacity as
New Mexico Lieutenant Governor and President of the
New Mexico Senate, MIMI STEWART, in her official
capacity as President Pro Tempore of the New Mexico
Senate, and JAVIER MARTINEZ, in his official
capacity as Speaker of the New Mexico House of
Representatives,

Defendants.

DECLARATION OF KEVIN M. LEROY

I, Kevin M. LeRoy, declare under penalty of perjury as follows:

1. I am counsel for Plaintiffs Manuel Gonzales, Jr., Dinah Vargas, David Gallegos, and Timothy Jennings in the above-captioned case.
2. On September 15, 2023, Plaintiffs Manuel Gonzales, Jr., Dinah Vargas, David Gallegos, and Timothy Jennings filed their Annotated Findings Of Fact And Conclusions Of Law, along with Plaintiffs Republican Party Of New Mexico, Bobby and Dee Ann Kimbro, and Pearl Garcia.
3. Plaintiffs included multiple Exhibits to their Annotated Findings Of Fact And Conclusions Of Law that are drawn from publicly available sources.

4. Each of those Exhibits attached to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law are true and correct copies of those publicly available sources.

5. Attached as **Plaintiffs' Exhibit 1** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of Senate Bill 1 (2021 2d Special Session) and its associated redistricting maps, publicly available at <https://www.nmlegis.gov/Legislation/Legislation?chamber=S&legType=B&legNo=1&year=21s2> (all websites last accessed Sept. 15, 2023).

6. Attached as **Plaintiffs' Exhibit 9** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of N.M. Legis. Council Serv., *A Guide To State And Congressional Redistricting In New Mexico* (Apr. 2011), publicly available at <https://www.nmlegis.gov/Redistricting/Documents/187014.pdf>.

7. Attached as **Plaintiffs' Exhibit 10** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of N.M. Legis. Council, *Guidelines for the Development of State & Congressional Redistricting Plans* (Jan. 17, 2011), publicly available at <https://www.nmlegis.gov/Redistricting/Documents/Approved%20Redistricting%20Guidelines.pdf>.

8. Attached as **Plaintiffs' Exhibit 11** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of Citizen Redistricting Committee, *CRC District Plans & Evaluations* (Nov. 8, 2021 (Reissued)), publicly available at <https://www.nmredistricting.org/wp-content/uploads/2021/11/2021-11-2-CRC-Map-Evaluations-Report-Reissued-1.pdf>.

9. Attached as **Plaintiffs' Exhibit 12** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of NM Redistricting Public Comment Portal, *CCP - Peoples Map / El mapa de la gente* (Oct. 1, 2021) (Comment of Melanie Aranda), publicly available at <https://portal.newmexico-mapping.org/submission/p5025>.

10. Attached as **Plaintiffs' Exhibit 13** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of: (a) S.B.1, New Mexico House Of Representatives Official Roll Call For Senate Bill 1 (Dec. 11, 2021), publicly available at <https://www.nmlegis.gov/Sessions/21%20Special2/votes/SB0001HVOTE.pdf>; and (b) New Mexico State Senate Official Roll Call For Senate Bill 1 (Dec. 10, 2021), publicly available at <https://www.nmlegis.gov/Sessions/21%20Special2/votes/SB0001SVOTE.pdf>.

11. Attached as **Plaintiffs' Exhibit 14** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of New Mexico Legislature, *Find My Legislator*, publicly available at https://www.nmlegis.gov/Members/Find_My_Legislator.

12. Attached as **Plaintiffs' Exhibit 15** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of Susan Montoya Bryan, *Top Democrat Says District Will Be Redrawn After GOP Win*, Associated Press (Nov. 5, 2020), publicly available at <https://apnews.com/article/legislature-redistricting-steve-pearce-elections-house-elections-86a3113b29a38a622ac3b5216e818a06>.

13. Attached as **Plaintiffs' Exhibit 17** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of A tweet from Senator Mimi Stewart, @Sen_MimiStewart, X (formerly Twitter) (Feb. 19, 2022, 6:31 PM), publicly available at https://twitter.com/Sen_MimiStewart/status/1495194463097950208.

14. Attached as **Plaintiffs' Exhibit 19** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of *Redistricting Report Card: New Mexico 2021 Final Legislative Congressional Plan 221711.1*, Princeton Gerrymandering Proj. (last modified Mar. 10, 2022), publicly available at <https://gerrymander.princeton.edu/redistricting-report-card/?planId=recUGCKKJwK2iyic>.

15. Attached as **Plaintiffs' Exhibit 20** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of Nash Jones, *Non-Partisan Groups Offer Mixed Evidence to Judge Deciding Fairness of NM Congressional Map*, Source N.M. (Aug. 17, 2023), publicly available at <https://sourcennm.com/2023/08/17/non-partisan-groups-offer-mixed-evidence-to-judge-deciding-fairness-of-nm-congressional-map/>.

16. Attached as **Plaintiffs' Exhibit 21** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of the official New Mexico congressional election results, N.M. Sec'y Of State, *Official Results 2022 General November 8, 2022* (last updated Nov. 29, 2022), publicly available at <https://electionresults.sos.state.nm.us/resultsSW.aspx?type=FED&map=CTY>.

17. Attached as **Plaintiffs' Exhibit 22** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of Suzanne Gamboa, *Democratic Rep. Vicente Gonzalez Wins In Texas' 34th Congressional District, Defeating Republican Rep. Mayra Flores*, NBC News (Nov. 8, 2022), publicly available at <https://www.nbcnews.com/news/latino/democratic-rep-vicente-gonzalez-wins-texas-34th-congressional-district-rcna55741>.

18. Attached as **Plaintiffs' Exhibit 23** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of Ballotpedia, *United States House of Representatives elections, 2022*, publicly available at https://ballotpedia.org/United_States_House_of_Representatives_elections_2022.

19. Attached as **Plaintiffs' Exhibit 24** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of A tweet from Dave Wasserman, @Redistrict, X (formerly Twitter) (Dec. 17, 2021, 10:31 AM), publicly available at <https://twitter.com/Redistrict/status/1471880710097096710>.

20. Attached as **Plaintiffs' Exhibit 27** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of N.M. Energy, Mins. & Nat. Res. Dep't, *Oil Conservation Division (OCD) Geospatial Applications*, publicly available at <https://ocd-hub-nm-emnrd.hub.arcgis.com/>.

21. Attached as **Plaintiffs' Exhibit 28** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of N.M. Bureau of Geology & Min. Res., *Frequently Asked Questions About Oil & Gas* (rev. May 4, 2022), publicly available at <https://geoinfo.nmt.edu/faq/energy/petroleum/home.html#:~:text=and%>

20gas%20fields.-,Where%20are%20oil%20and%20gas%20produced%20in%20New%
20Mexico%3F,Counties%20in%20northwestern%20New%20Mexico.

22. Attached as **Plaintiffs' Exhibit 29** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of Brief for the States of Oregon *et al.* as *Amici Curiae*, *Rucho v. Common Cause*, No.18-422 (U.S. Mar. 8, 2019), publicly available at https://www.supremecourt.gov/DocketPDF/18/18-422/91410/20190308171933052_Common%20Cause%20Final.pdf.

23. Attached as **Plaintiffs' Exhibit 30** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of Maryland State Bd. Of Elections, *Official 2014 Gubernatorial General Election results for Representative in Congress*, publicly available at https://elections.maryland.gov/elections/2014/results/General/gen_results_2014_2_008X.html.

24. Attached as **Plaintiffs' Exhibit 31** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of Carol A. Clark, *New Mexico Senate Passes CD Map Proposal*, Los Alamos Daily Post (Dec. 11, 2021), publicly available at <https://ladailypost.com/new-mexico-senate-passes-cd-map-proposal/>.

25. Attached as **Plaintiffs' Exhibit 33** to Plaintiffs Annotated Findings Of Fact And Conclusions Of Law is a true and correct copy of Sabrina Eaton, *Ohio's Longest-Serving U.S. House of Representatives Members Face Election Headwinds After Redistricting*, Cleveland.com (Sept. 19, 2022), publicly available at <https://www.cleveland.com/news/2022/09/ohios-longest-serving-us-house-of-representatives-members-face-election-headwinds-after-redistricting.html>.

I declare under penalty of perjury under the laws of the State of New Mexico that the foregoing is true and correct. N.M. R. Civ. P. Dist. Ct.1-011(B).

Dated: September 15, 2023

/s/ Kevin M. LeRoy
KEVIN M. LEROY

CERTIFICATE OF SERVICE

I hereby certify that a true and complete copy of the foregoing will be served on all counsel via the e-filing system.

Dated: September 15, 2023

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