SUPERIOR COURT OF CALIFORNIA
COUNTY OF SAN DIEGO - CENTRAL DIVISION
DEPARTMENT 73 HON. JOEL R. WOHLFEIL

CITIZENS OVERSIGHT INC., a Delaware non-profit corporation; RAYMOND LUTZ, an individual,	
Plaintiffs,	
vs.	**Case No.: 37-2016-00020273-CL-MC-CTL**
MICHAEL VU, San Diego Registrar of Voters; HELEN N. ROBBINS-MEYER, San Diego County Chief Administrative Officer; COUNTY OF SAN DIEGO, a public entity; DOES 1-10,	
Defendants.	

REPORTER'S TRANSCRIPT OF PROCEEDINGS
October 11, 2016

Appearances:

For Plaintiffs:
CARE LAW GROUP PC
BY: ALAN L. GERACI, ESQ.
817 W. San Marcos Boulevard
San Marcos, California 92078
619.231.3131

For Defendants:
OFFICE OF COUNTY COUNSEL
BY: STEPHANIE A. KARNAVAS, ESQ.
BY: TIMOTHY M. BARRY, ESQ.
1600 Pacific Highway, Room 355
San Diego, California 92101
619.531.5834

KRISTY A. MONTALBAN, CSR NO. 13551
OFFICIAL REPORTER PRO TEMPORE

SAN DIEGO, CALIFORNIA

TUESDAY, OCTOBER 11, 2016; 9:20 A.M.

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THE COURT: Okay. Is it Dr. Stark?

MR. GERACI: Doctor or professor.

THE COURT: Is he outside in the hallway?

MR. GERACI: He is.

THE COURT: Madam deputy, if you can retrieve Dr. Stark.

THE BAILIFF: Yes, your Honor.

THE COURT: Good morning, sir. If you could follow the directions of my deputy and clerk, please.

THE BAILIFF: Follow me.

MR. BARRY: Your Honor, I'm sorry, Ms. Karnavas is going to be doing the cross, so she'll be the person objecting, if appropriate.

THE COURT: That's fine. Okay. Anyway, please, madam deputy.

THE CLERK: Please raise your right hand. Do you solemnly state under penalty of perjury that the evidence you shall give in this matter shall be the truth, the whole truth and nothing but the truth?

THE WITNESS: I do.

THE CLERK: Please take the stand.

THE BAILIFF: Please have a seat and make sure you speak into the mic.

THE CLERK: Sir, please state your full name

and spell the last name for the record.

THE WITNESS: I'm sorry, I couldn't hear you.

THE CLERK: Please state your full name and spell the last name for the record.

THE WITNESS: Philip Bradford Stark, S-t-a-r-k.

THE CLERK: Thank you.

THE COURT: One moment, Counsel. Okay. Whenever you're ready.

DIRECT EXAMINATION

BY MR. GERACI:

Q. Good morning, Professor Stark. Do you prefer professor or doctor?

A. I actually prefer Philip, but whatever makes you feel fine.

Q. In court we'll call you Professor Stark.

A. Thank you.

Q. What's your occupation?

A. I'm a professor of statistics at the University of California, Berkeley. I'm also currently serving as associate dean of mathematical and physical sciences.

Q. And how long have you been so appointed?

A. I've been on the faculty of UC Berkeley since 1988. I've been associate dean -- this is my second year as associate dean.

Q. What is your formal education and background?

A. I have a bachelor's degree in philosophy from Princeton University. I have a Ph.D. in earth science

from UC San Diego. I was a post-op in statistics at UC Berkeley before getting my faculty position.

Q. And what subjects do you teach at Berkeley?

A. Statistics.

Q. Solely statistics?

A. Yes.

Q. Ask you to take a look at Exhibit 53.

If I may approach, your Honor?

THE COURT: You bet.

BY MR. GERACI:

Q. If you can just take a quick look at Exhibit 53, is that a true and correct copy of your curriculum vitae?

A. As of August 26, yes, there has been a few things since then, but yes, sir.

Q. I move to admit Exhibit 53.

THE COURT: Any objection?

MR. BARRY: No objection.

THE COURT: All right. Just give me one moment, please. Actually, Counsel, it's in your binder.

MR. BARRY: Yes, I'm sorry.

THE COURT: All right. Exhibit 53 will be admitted. Continue on, Counsel.

(Exhibit 53 was admitted into evidence.)

BY MR. GERACI:

Q. Do you hold any licenses or certificates?

A. I'm licensed as a professional statistician by the American Statistical Association, and as a physicist

by the Institute of Physics.

Q. And what are your professional associations?

A. I belong to the Bernoulli Society, an institute for mathematical statistics, the American Statistical Association. Those are the primary professional organizations. I'm also the Institute of Physics and Royal Astronomical Society.

Q. Have you received any awards?

A. Yes, I was --

Q. Academic awards I should ask?

A. Sorry. Yes, I was a National Science Foundation Postdoctoral Fellow in Mathematical Sciences. I was a Presidential Young Investigator. Those are now called presidential early career awards. Miller Research Professor. I received the John Gideon Award for Election Integrity, the Election Verification Network. And I received the Chancellor's Award for Research in the Public Interest, that's the UC Berkeley.

Q. The Gideon Award was for election integrity?

A. Yes.

Q. What specifically did that entail?

A. For my work in election audits.

Q. Anything specifically identified?

A. It might have called out my work on risk-limiting audits in particular, but I don't recall.

Q. Have you done research in or published in the area of election integrity or election implementation?

A. Yes, I have, a number of refereed articles and

then things in the popular press as well, lectures at professional societies and workshops and everything from political science to things more specifically, elections, including talks for the California Association of Clerks and Election Officials, talks for IACREOT, which I will not be able to reconstruct, International Association of Clerks, Recorders, Election Officials and Treasurers.

Q. Have you testified before, either in court or before the legislature?

A. Yes, sir, both.

Q. Okay. On how many occasions have you testified before the legislature on elections issues?

A. If I recall correctly, I've testified three times to the California Legislature on election issues.

Q. What were the subjects of your testimony?

A. Again, if I'm recalling correctly, the first two were regarding AB 2023, which authorized pilot of risk-limiting audits in California funded by the elections commission. So I think if I'm recalling correctly, it was one appearance in the assembly and one in the senate.

And since then, I testified also regarding AB44, which relates to recounts and the purchase of election equipment by California jurisdictions in the future as provision that they should be auditable using the risk-limiting audit methods that I developed.

Q. And when did you last testify in court

concerning election integrity?

A. In court I've only testified once regarding an election in California, which was contested election in Marin County involving the Novato Sanitary District. I don't recall the year of that. It was roughly 2011 or '12. I could look at my CV and tell you. I've submitted papers, you know, a report relating to election integrity and New York State shortly after they updated their voting systems to paper-based optical scan voting systems, but I don't think I had any other interception with the court's system regarding elections.

Q. So you've been qualified to testify on the issues of election implementation before?

MS. KARNAVAS: Objection. Mischaracterizes testimony.

THE COURT: Overruled. You can answer the question.

THE WITNESS: I'm not -- I was qualified as an expert in the statistics relating to elections, but I'm not sure whether that answers your question.

BY MR. GERACI:

Q. Yes. Thank you. Did you review any materials in preparation for your testimony here today?

A. Yes, sir.

Q. Specifically, did you review the plaintiff's second amended complaint?

A. Yes, sir.

Q. And are you familiar with Elections Code Section 336.5?

A. Yes, sir.

Q. And Election Code Section 15360, which is the subject of the lawsuit?

A. Yes, sir.

Q. Are you aware of the changes that were made by AB 985 effective January 1, 2012?

A. Yes, sir, I actually contributed to the language of that.

Q. And what was that bill involving?

A. It was intended to make it easier for local election officials to conduct the 1 percent manual tally by allowing them to separately audit batches of vote-by-mail ballots rather than meeting to sort them by precinct and incorporate them together with the ballots that were cast in person and precinct.

Q. Are you familiar with the legislative history of SB 1235 which became law in 2007?

A. I've read a document that was labeled "legislative history" and contained much of it. I don't know whether it was complete or not, but . . .

Q. How have you professionally been involved in California election processes?

A. My first exposure was appointed to then Secretary of State Debra Bowen's Post-Election Audit Standards Working Group, which was part of her top to bottom review of voting systems in California just after

she took office of Secretary of State. Then in -- after my service there, I started to do research on how to improve audits, and I partnered with several counties in California to conduct risk-limiting audits. Those first three counties were Marin County, Yolo County and Santa Cruz County.

Then working -- I worked with the Secretary of State around that time. Language for the PMT, post election manual tally emergency regulation, worked for the Secretary of State's office on the wording of AB 2023 and on the grant proposal to The US Election Assistance Commission that ultimately funded that.

Again, testified in support of the bill in both houses of the California Legislature. Then worked for the Secretary of State to conduct a number of pilot risk-limiting audits and roughly a dozen California counties ranging in size from Orange County down to, I think Humboldt might have been the smallest participated or maybe Madera participated in writing up the results, and reports back to the legislature and to the Election Assistance Commission. I think that's in addition to the testimony regarding the contested election, that's the main part of my intersection with California elections. I've done work for other states as well.

Q. What was Secretary of State Debra Bowen's top to bottom review as you called it?

A. She commissioned an extensive evaluation of the voting systems that were in use in California to

determine whether they were reliable and secure. It was subcontracted to several University of California campuses, if I'm recalling correctly, it included Davis, Berkeley and San Diego. There were a number of teams that were either trying -- you know, examining the source code for the voting systems to look for vulnerabilities or trying to attack the systems blind without looking at the source code, assessing what the vulnerabilities were.

And in conjunction with that, she convened the Post-Election Audit Standards Working Group in order to look at how the audits were conducted in California and elsewhere, and tried to figure out what best practices were.

Q. Did you have involvement in that top to bottom review?

A. Only through my involvement in the Post-Election Audit Standards Working Group.

Q. Okay. Have you interviewed Registrars of Voters in California about the implementation of the 1 percent manual tally?

A. Yes, I've probably spoken with ten or 15 -- I mean, visited their offices and discussed with them how they conduct the tally and how the paper flows through their office and the process of the canvas. I might have spoken with more informally at the CACEO or at conferences, but actual visits and observing, it's been, you know, on the border of a dozen.

Q. Why did you discuss or interview these Registrar of Voters, what was your purpose or intent?

A. Well, to understand how their logistics work, to try to figure out how they might be able to conduct risk-limiting audits, whether the risk-limiting audits would tend to be cost-saving for them. In many cases the counties were part of the pilot, and so to understand their paper flow, in order to make the risk-limiting audits mate with what they were doing without disrupting their ability to carry out their regular functions in a timely way.

Q. Is the 1 percent manual tally a particular type of audit?

A. Yes, it's like audits in general, it's a quality control check on the election results and the functioning of the equipment that was used to -- used in the conduct of the canvas.

Q. And you described your involvement with risk-limiting audit. You're the creator of that concept?

A. Yes, sir, I invented it.

Q. And it's -- as I understood your previous testimony, it has been some pilot implementation of that process?

A. Yes, there has been risk-limiting audits in roughly 13 counties in California, three or four counties in Colorado, county in Ohio and in Denmark.

Q. And again, what is the risk-limiting audit?

A. Well, the basic idea is what an audit should accomplish is to give you confidence when it is done that the outcome of the contest that are under audit are correct. So if going in, there is a contest with an incorrect result, coming out of the audit that should have been corrected. Generally by law, the only way to correct an incorrect result is by a complete hand count. So risk-limiting audits have some chance of leading to a full hand count to set the record straight.

If the results were inaccurate in the sense that the wrong people, the wrong individuals or positions were deemed to have won, you can think of a risk-limiting audit as an intelligent incremental recount that stops the recount as soon as it comes very clear that it's pointless, because the recount will just confirm the winners that were already named.

Q. So it's based on a statistical model that you create?

A. A number of them, but basic statistical framework is we want to test the hypothesis that the outcome is wrong. We keep collecting data until either we can conclude that the outcome is correct or until we've done a full hand count. The underlying theory behind that has evolved in various ways, develop methods that are suitable for different kinds of elections where all the elections vote for, you know, several people, like city council elections, elections that require a super majority, proportional representation, a variety

of things like that.

And then also develop methods that are suitable for working at the level of precincts, very, very similarly to how the 1 percent manual tally is conducted or methods that are more efficient statistically because they look at smaller batches of ballots, for instance, on the ability to check whether an individual ballot was interpreted correctly by the voting system.

Q. So how does the risk-limiting audits compare or relate to the 1 percent manual tally process?

A. Well, they both in broad-brush are after the same thing, which is evidence that everything is okay, that the outcome is correct and they both can pick up various kinds of mistakes or errors in the process or malfeasance in the process. The primary difference is that the risk-limiting audit is really geared to ensuring that the outcome is correct, and so it puts more scrutiny on contests with narrow margins, because the smaller amount of error could cause the answer to be wrong and looks more strategically at the paper records in order to be more efficient.

Q. So in the contest where there is a wider margin between candidates, for example, you might need a sample of less than 1 percent to basically verify the election?

A. Yes, the details will depend on what the risk limit is, are you trying to certify things to 99 percent confidence or 90 percent confidence or something lower. It will depend on the margin and the contest. It will

depend on the nature of the batches that are available for audit that's precinct-based. It generally requires looking at more paper. But in general, what we found in the California pilots was that the risk-limiting audits would have been less expensive than the 1 percent manual tally was. On the other hand, the workload is unpredictable, because if errors are encountered in the course of conducting the risk-limiting audit, then the sample expands potentially leading to a full manual count if enough errors is encountered.

So that could be substantially more expensive than the 1 percent audit -- 1 percent manual tally but has the benefit of actually breaking the outcome whereas the 1 percent manual tally results in a report to the Secretary of State's office but doesn't necessarily report the outcome as well.

Q. Does both the risk-limiting audits and the 1 percent manual tally both require a robust chain of custody?

A. If you don't have a robust chain of custody and can't -- you don't have affirmative evidence that you have all the ballots, that you have, you know, only the ballots that were actually cast, nothing's been altered or whatever, then the audit is more theater than it is substantive. Auditing an unreliable record doesn't produce a reliable result.

Q. And conversely or additionally, does a risk limiting audit and 1 percent manual tally require that

the individual ballots be available for inspection?

A. Just as the 1 percent manual tally, you're comparing a hand count or hand inspection of the paper trail, generally paper ballots against an electronic record. It does require physical access to individual ballots.

Q. Just so my notes are complete, where did you say the pilot program for risk-limiting audit has been tested, what counties?

A. I won't be able to name them all off the top of my head, but trying to start from the south, Orange, I believe Santa Barbara, if I'm recalling correctly, San Luis Obispo, Monterey, Santa Cruz, Alameda, Stanislaus, Merced, Marin, Madera, Yolo, Humboldt, and I probably left out one or two.

Q. That's fine, thank you. By the way, have you been retained to testify here today?

A. No, I have not.

Q. You are not receiving any compensation from any party for your testimony today?

A. I'm expecting to be reimbursed for my travel expenses but no compensation.

Q. Okay. The court's probably curious then, why are you down here from Berkeley to testify?

MS. KARNAVAS: Objection. Relevance.

THE COURT: Overruled.

THE WITNESS: If the allegations in the second amended complaint are correct, then I think the

integrity of the 1 percent manual tally has been really compromised, and I'm interested in promoting election integrity however I can. This is an area that is very much of interest to me personally and professionally. So if there is an opportunity to help, I'm happy to.

BY MR. GERACI:

Q. Since we are here today to talk about the 1 percent manual tally, let me focus you on that. What errors can be detected during the 1 percent manual tally process?

THE COURT: One moment, Counsel.

MR. GERACI: Yes, your Honor.

THE COURT: Excuse me, Professor Stark, let me catch up here. All right. Please continue.

You might, Counsel, have to restate the question.

BY MR. GERACI:

Q. What errors can be detected during the 1 percent manual tally process?

A. A variety of kinds of errors can be detected ranging from problems with the chain of custody, for instance, if the electronic record doesn't include some batch of ballots that should have been included, or conversely, you know, if the paper can't be found, the correspondence to some electronic results, mechanical issues, mispicks, misfeeds, double picks, things like that, in the scanners, if it's a scanner-based system.

Some kinds of ballot programming errors or

ballot definition errors, for instance, if accidently when the equipment was configured two candidate names or contests were swapped, calibration errors in the scanners, problems with the scanners picking up paper that's not the length that's expected, various kinds of voter errors, voters mismarking ballots or in a way that the equipment can't pick up reliably, that can be as odd as voters marking ballots using gel pens which have a kind of ink that scanners don't pick up or didn't pick up historically. It can pick up some kinds of hacking.

It can pick up -- basically, if the audit trail itself is reliable, if there is good -- if there has been good physical chain of custody, it can pick up anything that would have affected the outcome. The chance that it picks it up depends on how widespread the problem is, whether it's concentrated to some subset of ballots and not limited, spread out throughout all the ballots of the election.

Q. How about misfeasance or malfeasance of employees?

A. Some kinds, yes, for instance, hacking, whether that's inside or outside or hacking of the tabulation system or the voting machines themselves.

Q. Or a general compromise to the central tabulating system?

A. Yes.

MS. KARNAVAS: Objection. Lacks foundation.

THE COURT: Overruled.

THE WITNESS: I'm sorry, yes.

THE COURT: He answered the question.

BY MR. GERACI:

Q. He said yes? I'm sorry, I didn't hear you.

Are you familiar with the 1 percent manual tally once errors are detected, are they corrected in the system?

A. In general, there is not a requirement to correct them in the system. There is a requirement to report to the Secretary of State what discrepancies were found and how they were resolved, but for example, if the 1 percent manual tally turned up the fact that two contests had been swapped in the programming, it doesn't specifically require the local election official to correct that and retabulate. On the other hand, I imagine there would be public outcry if he or she didn't.

Q. From a statistical standpoint, is the batch method for conducting the 1 percent manual tally on mail ballots as good as or better than or equal to the pure precinct method?

MS. KARNAVAS: Objection. Lacks foundation.

BY MR. GERACI:

Q. If you have an opinion?

A. So I --

THE COURT: One moment, Professor Stark. Let me see counsel at sidebar for just a moment.

(Off the record discussion at sidebar.)

THE COURT: All right. Thank you very much, Counsel. The objection will be sustained at this point. Let's back up and lay a little extra foundation, Counsel.

BY MR. GERACI:

Q. Professor Stark, could you explain to the Court the difference between the precinct method and the batching method for conducting the 1 percent manual tally on vote by mail?

A. I understand you to be referring to the change to the Election Code that came forthwith, 985, is that what you're referring to?

Q. Yes.

A. So what that -- the two options that are available are to draw 1 percent of precincts or precincts corresponding to 1 percent of the vote at random and compare the manual tally of those votes to the electronic results or to draw two samples, one of those ballots that were cast physically in the precinct and another of ballots that were cast by mail, not necessarily organized by precinct.

That has a number of logistical and statistical advantages. The statistical advantage is because you end up looking at twice as many samples, the audit has more power -- power is a term of art here, has more statistical power to find errors, if errors exist.

The logistical advantage for some jurisdictions is that if they don't sort their vote-by-mail ballots by

precinct in the ordinary course of conducting the canvas, they don't have to do that sorting for the purpose of the 1 percent manual tally. Instead if they are able to generate batch reports for individual batches as scanned, they can check the electronic results for those batches against the manual tally of the votes that were in that scan batch.

Q. When is it important to actually begin the 1 percent manual tally relative to the official canvas process?

A. I'm sorry, when is it important?

Q. When is it important to conduct the random selection?

A. Oh, you shouldn't draw the random sample from any collection of results that are not final but for the audit. So there should basically be an all but certified statement of votes counted for. I should be careful with that, it's a term of art. But sort of tally for the batches from which the sample is to be drawn.

So if the results are going to be drawn in a precinct-based way, then the results need to be final for every precinct before you draw the sample. If you are drawing separate samples from vote by mail and ballots cast in person, you could, for example, start to draw the sample of the vote-by-mail ballots before the ballots cast in person have been completely tabulated provided the vote-by-mail ballots have been completely

tabulated.

Q. You've heard testimony that here in San Diego they used a GEMS report to determine which batches contain ballots from precincts to be reviewed in the 1 percent manual tally?

A. Yes.

Q. And to perform a precinct-based 1 percent manual tally, they had to pull ballots from the decks or batches by hand. Does that method comply with the 1 percent manual tally?

MS. KARNAVAS: Objection. Lacks foundation.

THE COURT: One moment.

MS. KARNAVAS: Relevance. Also calls for a legal conclusion potentially.

MR. GERACI: I could rephrase the question.

THE COURT: One moment, Counselor. Just give me one moment, Counselor.

MR. GERACI: Yes, your Honor.

THE COURT: The objection is overruled. Madam Reporter, may I ask you to reread the question.

(The question was read by the reporter.)

THE WITNESS: So forgive me, your Honor, but I actually do think it's asking me to interpret the law, and I'm reluctant to do that, but I don't believe that the Election Code specifically says not to do that, I don't think the election --

THE COURT: Let me stop you. Now, as the answer is unfolding, not the prefatory comment but his

reference to the Election Code, the objection on calls for a legal conclusion will be sustained.

MR. GERACI: That's fine, your Honor. Thank you.

BY MR. GERACI:

Q. What I wanted to know is from a statistical point of view, does this method comply with statistical reference?

A. So from a statistical point of view, conducting the 1 percent manual tally that way actually undermines the point of doing the tally, which is to have an independent check of whether the voting system and tabulation system function correctly. If you pull the ballots that way, you're relying on the election systems electronic results to tell you how many ballots you have of a given style and a given batch.

The ways of conducting the manual tally -- so you basically have to trust the system to have an accurate record in the first place, which you're then double-checking, whereas -- there are two ways of conducting the tally that would still provide an independent check on the integrity of the voting system. One would be to sort all of the vote-by-mail ballots into precincts so that you have an independent physical tally of how many ballots there are of each ballot style, and then combine them with those that were cast in person, or alternatively, to use the batches as they were scanned, the scanned batches as they came in.

So it does -- it requires reliance on the voting system accuracy of the voting system results in exactly the way the audit is supposed to be checking the accuracy of the results.

Q. Do you have an understanding of how the registrar in San Diego draws the sample, the random draw using ping-pong balls and picking precincts and batches in that method?

MS. KARNAVAS: Objection. Leading.

THE COURT: One moment, sir. In part it may be, but it's foundational in nature. The question calls for a yes-or-no answer only.

Madam Reporter, can you reread the question, please.

(The question was read by the reporter.)

THE WITNESS: Yes, I read a description of the method that was attached to the second amended complaint. I understand that to be the method that San Diego currently uses.

BY MR. GERACI:

Q. What is your understanding?

A. My understanding is that it involves four groups of ping-pong balls, three groups numbered zero through nine, and one group numbered zero and one. And that the procedure is to -- first, they are designated as these -- the first group of balls corresponds to the ones digit in a random number, the second to the tens, the third to the hundreds and the fourth to the

thousands.

My understanding is that there is approximately 1,684 precincts in San Diego County, and that the procedure is to first draw a ball at random from the ones digit then the tens then the hundreds. If the resulting number is bigger than -- is less than 680-something, whatever that number is, then the thousands digit is drawn, otherwise the precinct with that number that's just represented by the first three digits is selected.

Q. Is that procedure statistically flawed?

MS. KARNAVAS: Objection. Lacks foundation. Also relevance. There is no allegation in this case pertaining to the draw.

THE COURT: Overruled. Overruled.

THE WITNESS: That procedure has the consequence that precincts that are numbered 680-something to 999 are twice as likely to be selected as other precincts. My understanding is that the intent of the 1 percent manual tally --

MS. KARNAVAS: Objection, your Honor, about to opine -- about to give a legal opinion. Move to strike. He just said his intent -- his understanding of the intent of the 1 percent manual tally.

THE COURT: All right. The Court was not hearing nor understanding this to fall within the area of legal opinion but instead from a statistical perspective Professor Stark was expressing his view.

Now, you did use the word "intent." That may suggest that you're trying to express a legal opinion. Did you want to refrain -- or rephrase your answer, Mr. Stark?

THE WITNESS: I get that impression from reading the legislative history.

THE COURT: All right. Well, Madam Reporter, let's reread the question and the beginning of Professor Stark's answer, and what I'm going to ask you to do is just limit the focus of your testimony to -- your qualifications are that of a statistician. I want to hear what you've got to say from a statistical perspective. I don't want nor care for you to express your legal opinion. So with that in mind -- and I'm not being critical of that, so please understand, but to that extent, defense counsel's objection is well taken.

So Madam Reporter, may I ask you to reread the last question and the beginning of Professor Stark's answer, and if you haven't finished, feel free to do so. If you have, move on to the next question.

(The record was read by the reporter.)

THE COURT: All right. Did you finish your answer, Mr. Stark?

THE WITNESS: I would like to continue, if I may.

THE COURT: All right. Feel free.

THE WITNESS: The Elections Code says selected at random, using a random number generator or other method approved by the Secretary of State to regulation

or something to that effect.

MS. KARNAVAS: Your Honor, the witness is struggling because he is about to opine what the intent --

THE COURT: Well, counsel, what's your evidentiary objection?

MS. KARNAVAS: Calls for a legal conclusion.

THE COURT: That objection is overruled. There's nothing inappropriate by anybody referring to the Elections Code. Mr. Vu did it countless numbers of times, and the Court gave him wide latitude to express his views. The Court intends to give the other side's expert just as much latitude.

So, again, I've admonished the witness who is clearly qualified to understand the meaning between giving an opinion on legal opinion or not, so with that in mind, continue on, Professor Stark.

THE WITNESS: Yes, sir. The code doesn't specify the probabilities that should be used in the legislative history. There is language that says equally likely or equal chance of selecting each precinct or something to that effect. That doesn't appear in the final law.

MS. KARNAVAS: Your Honor, again, move to strike. He is now testifying --

THE COURT: Counsel, what is your evidentiary objection?

MS. KARNAVAS: Lacks foundation. Is testifying

based on --

THE COURT: Overruled. The objection is overruled.

THE WITNESS: So the statistical consequence of this is that different precincts get different levels of scrutiny. If I wanted to alter the results of the election, I as a black hat would know that there were some precincts that I could alter the results of with a smaller probability of being -- of that alteration being discovered.

BY MR. GERACI:

Q. Are you familiar with provisional ballots, what provisional ballots are?

A. Yes, sir.

Q. What's your understanding?

A. They are ballots where it has not yet been established whether the person who seeks to cast the ballot is entitled to cast a ballot of that style or ballot period.

Q. From a statistical standpoint, is it proper to conduct the 1 percent manual tally before you verified and included the verified provisional ballots in the pool or sample?

A. To omit any ballots that are contributing -- that ultimately will contribute to the outcome of the contest from scrutiny impairs the ability of the 1 percent manual tally to find problems. An analogy would be it's like performing a final safety inspection

on an automobile before the rear brakes have been installed. You can do it, but you're leaving something out.

Q. That would be the same case if you've left out some part of the vote-by-mail ballots?

A. Yes, sir, would not be a check of the election, it would be a check of part of the election.

Q. What is a frame bias?

A. In sampling, usually there is a population that one would like to study and often if there is -- let me start over again. In trying to learn something about a population from a random sample, typically the name for the collection of things from which the sample is drawn is called the frame. The frame is not always identical to the population that one wishes to study. When they are not identical, there can be bias as a result of the mismatch between the frame and the population.

This can happen in sampling humans, it can happen in sampling objects. If the goal is to learn about all of the ballots that were cast in an election, that's the population, if one draws the sample only from ballots that were cast in precinct or ballots that were cast in precinct and vote-by-mail ballots that had been processed as of a certain date but not the end of the canvas, then the frame is not the same as the population, and in general, there is sampling -- there is frame bias as a result of that.

Q. And does that make the 1 percent manual tally

if it's done without conducting it on a hundred percent of the population, does that create a frame bias?

A. Yes, sir.

Q. Nothing further.

(End of portion.)

-o0o-

REPORTER'S CERTIFICATE

COUNTY OF SAN DIEGO,)
STATE OF CALIFORNIA,)

I, Kristy A. Montalban, Certified Shorthand Reporter licensed in the State of California, License No. 13551, hereby certify that the foregoing proceeding was reported by me and was thereafter transcribed with Computer-Aided Transcription; that the foregoing is a full, complete, and true record of said proceeding.

I further certify that I am not of counsel or attorney for either or any of the parties in the foregoing proceeding and caption named or in any way interested in the outcome of the cause in said caption.

In witness whereof, I have hereunto set my hand this day:

_____

Kristy A. Montalban
CSR No. 13551

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