IN THE UNITED STATES DISTRICCT COURT, NORTHERN DISTRCOICT OF GEORGIA, ATLANTA DIVISION

CORECO JA'QAN PEARSON, VIKKI TOWNSEND CONSIGLIO, GLORIA KAY GODWIN, JAMES KENNETH CARROLL, , CAROLYN HALL FISHER, CATHLEEN ALSTON LATHAM, and BRIAN JAY VAN GUNDY, **Plaintiffs.** **v.** **BRIAN KEMP, in his official capacity as Governor of Georgia, BRAD RAFFENSPERGER, in his official capacity as Secretary of State and Chair of the Georgia State Election Board, DAVID J. WORLEY, in his official capacity as a member of the Georgia State Election Board, REBECCA N.SULLIVAN, in her official capacity as a member of the Georgia State Election Board, MATTHEW MASHBURN, in his official capacity as a member of the Georgia State Election Board, and ANH LE, in her official capacity as a member of the Georgia State Election Board,** **Defendants.**	**CASE NO.**

COMPLAINT FOR DECLARATORY, EMERGENCY, AND PERMANENT INJUNCTIVE RELIEF

NATURE OF THE ACTION

This civil action brings to light a massive election fraud, multiple violations of Georgia laws, including O.C.G.A. §§ 21-2-30(d), 21-2-31, 21-2-33.1 and §21-2-522, and multiple Constitutional violations, as shown by fact witnesses to specific incidents, multiple expert witnesses and the sheer mathematical impossibilities found in the Georgia 2020 General Election.[1]

1.

As a civil action, the plaintiff's burden of proof is a "preponderance of the evidence" to show, as the Georgia Supreme Court has made clear that, *"[i]t was not incumbent upon [Plaintiff] to show how the [] voters would have voted if their [absentee] ballots had been regular. [Plaintiff] only had to show that there were enough irregular ballots to place in doubt the result."* *Mead v. Sheffield*, 278 Ga. 268, 272, 601 S.E.2d 99, 102 (2004) (*citing Howell v. Fears*, 275 Ga. 627, 571 S.E.2d 392 (2002).

[1] The same pattern of election fraud and voter fraud writ large occurred in all the swing states with only minor variations, see expert reports, regarding Michigan, Pennsylvania, Arizona and Wisconsin. (See William M. Briggs Decl., attached here to as Exh. 1, Report with Attachment). Indeed, we believe that in Arizona at least 35,000 votes were illegally added to Mr. Biden's vote count.

2.

The scheme and artifice to defraud was for the purpose of illegally and fraudulently manipulating the vote count to make certain the election of Joe Biden as President of the United States.

3.

The fraud was executed by many means,[2] but the most fundamentally troubling, insidious, and egregious is the systemic adaptation of old-fashioned "ballot-stuffing." It has now been amplified and rendered virtually invisible by computer software created and run by domestic and foreign actors for that very purpose. Mathematical and statistical anomalies rising to the level of impossibilities, as shown by affidavits of multiple witnesses, documentation, and expert testimony evince this scheme across the state of Georgia. Especially egregious conduct arose in Forsyth, Paulding, Cherokee, Hall, and Barrow County. This scheme and artifice to defraud affected tens of thousands of votes in Georgia alone and "rigged" the election in Georgia for Joe Biden.

[2] 50 USC § 20701 requires Retention and preservation of records and papers by officers of elections; deposit with custodian; penalty for violation, but as will be shown wide pattern of misconduct with ballots show preservation of election records have not been kept; and Dominion logs are only voluntary, with no system wide preservation system.

4.

The massive fraud begins with the election software and hardware from Dominion Voting Systems Corporation ("Dominion") only recently purchased and rushed into use by Defendants Governor Brian Kemp, Secretary of State Brad Raffensperger, and the Georgia Board of Elections. Sequoia voting machines were used in 16 states and the District of Colombia in 2006. Smartmatic, which has revenue of about $100 million, focuses on Venezuela and other markets outside the U.S. [3]

After selling Sequoia, Smartmatic's chief executive, Anthony Mugica. Mr. Mugica said, he hoped Smartmatic would work with Sequoia on projects in the U.S., though Smartmatic wouldn't take an equity stake." Id.

5.

Smartmatic and Dominion were founded by foreign oligarchs and dictators to ensure computerized ballot-stuffing and vote manipulation to whatever level was needed to make certain Venezuelan dictator Hugo Chavez never lost another election. (*See* Redacted whistleblower affiant*, attached as Exh*. 2) Notably, Chavez "won" every election thereafter.

[3] *See WSJ.com, Smartmatic to Sell U.S. Unit, End Probe into Venezuelan Links, by Bob Davis, 12/22/2006,* h*ttps://www.wsj.com/articles/SB116674617078557263*

6.

As set forth in the accompanying whistleblower affidavit, the Smartmatic software was designed to manipulate Venezuelan elections in favor of dictator Hugo Chavez:

> Smartmatic's electoral technology was called "Sistema de Gestión Electoral" (the "Electoral Management System"). Smartmatic was a pioneer in this area of computing systems. Their system provided for transmission of voting data over the internet to a computerized central tabulating center. The voting machines themselves had a digital display, fingerprint recognition feature to identify the voter, and printed out the voter's ballot. The voter's thumbprint was linked to a computerized record of that voter's identity. Smartmatic created and operated the entire system.

7.

A *core requirement* of the Smartmatic software design was the *software's ability to hide its manipulation of votes from any audit.* As the whistleblower explains:

> Chavez was most insistent that Smartmatic design the system in a way that the system could change the vote of each voter without being detected. He wanted the software itself to function in such a manner that if the voter were to place their thumb print or fingerprint on a scanner, then the thumbprint would be tied to a record of the voter's name and identity as having voted, but that voter would not be tracked to the changed vote. He made it clear that the system would have to be setup to not leave any evidence of the changed vote for a specific voter and that there would be no evidence to show and nothing to contradict that the name or the fingerprint or thumb print was going with a changed vote. Smartmatic agreed to create such a system and produced the software and hardware that

accomplished that result for President Chavez. (See Id., see also Exh. 3, Aff. Cardozo, attached hereto)).

8.

The design and features *of* the Dominion software do not permit a simple audit to reveal its misallocation, redistribution, or deletion of votes. First, the system's central accumulator does not include a protected real-time audit log that maintains the date and time stamps of all significant election events. Key components of the system utilize unprotected logs. Essentially this allows an unauthorized user the opportunity to arbitrarily add, modify, or remove log entries, causing the machine to log election events that do not reflect actual voting tabulations—or more specifically, do not reflect the actual votes of or the will of the people. (*See* Hursti August 2019 Declaration, attached hereto as Exh. 4, at pars. 45-48; and attached hereto, as Exh. 4B, October 2019 Declaration in Document 959-4, at p. 18, par. 28).

9.

Indeed, under the professional standards within the industry in auditing and forensic analysis, when a log is unprotected, and can be altered, it can no longer serve the purpose of an audit log. There is incontrovertible physical evidence that the standards of physical security of the voting machines and the software were breached, and machines were connected to

the internet in violation of professional standards and state and federal laws. (*See Id.)*

10.

Moreover, lies and conduct of Fulton County election workers about a delay in voting at State Farm Arena and the reasons for it evince the fraud.

11.

Specifically, video from the State Farm Arena in Fulton County shows that on November 3rd after the polls closed, election workers falsely claimed a water leak required the facility to close. All poll workers and challengers were evacuated for several hours at about 10:00 PM. However, several election workers remained unsupervised and unchallenged working at the computers for the voting tabulation machines until after 1:00 AM.

12.

Defendants Kemp and Raffensperger rushed through the purchase of Dominion voting machines and software in 2019 for the 2020 Presidential Election[4]. A certificate from the Secretary of State was awarded to Dominion

[4] Georgia Governor Inks Law to Replace Voting Machines, The Atlanta Journal-Constitution, AJC News Now, Credit: Copyright 2019 The Associated Press, June 2019. https://www.ajc.com/blog/politics/georgia-governor-inks-law-replace-voting-machines/xNXs0ByQAOvtXhd27kJdqO/

Voting Systems but is undated. (*See* attached hereto Exh. 5, copy Certification for Dominion Voting Systems from Secretary of State). Similarly a test report is signed by Michael Walker as Project Manager but is also undated. (See Exh. 6, Test Report for Dominion Voting Systems, Democracy Suite 5-4-A)

13.

Defendants Kemp and Raffensperger disregarded all the concerns that caused Dominion software to be rejected by the Texas Board of Elections in 2018, namely that it was vulnerable to undetected and non-auditable manipulation. An industry expert, Dr. Andrew Appel, Princeton Professor of Computer Science and Election Security Expert has recently observed, with reference to Dominion Voting machines: "I figured out how to make a slightly different computer program that just before the polls were closed, it switches some votes around from one candidate to another. I wrote that computer program into a memory chip and now to hack a voting machine you just need 7 minutes alone with it and a screwdriver." (Attached hereto Exh. 7, Study, Ballot-Marking Devices (BMDs) Cannot Assure the Will of the Voters by Andrew W. Appel Princeton University, Richard A. DeMillo, Georgia Tech Philip B. Stark, for the Univ. of California, Berkeley, December 27, 2019).[5]

[5] Full unredacted copies of all exhibits have been filed under seal with the Court and Plaintiffs have simultaneously moved for a protective order.

14.

As explained and demonstrated in the accompanying redacted declaration of a former electronic intelligence analyst under 305th Military Intelligence with experience gathering SAM missile system electronic intelligence, the Dominion software was accessed by agents acting on behalf of China and Iran in order to monitor and manipulate elections, including the most recent US general election in 2020. This Declaration further includes a copy of the patent records for Dominion Systems in which Eric Coomer is listed as the first of the inventors of Dominion Voting Systems. (See Attached hereto as Exh. 8, copy of redacted witness affidavit, 17 pages, November 23, 2020).

15.

Expert Navid Keshavarez-Nia explains that US intelligence services had developed tools to infiltrate foreign voting systems including Dominion. He states that Dominion's software is vulnerable to data manipulation by unauthorized means and permitted election data to be altered in all battleground states. He concludes that hundreds of thousands of votes that were cast for President Trump in the 2020 general election were transferred to former Vice-President Biden. (Exh. 26).

16.

Additionally, incontrovertible evidence Board of Elections records demonstrates that at least 96,600 absentee ballots were requested and counted but were never recorded as being returned to county election boards by the voter. *Thus, at a minimum, 96,600 votes must be disregarded.* (See Attached hereto, Exh. 9, R. Ramsland Aff.).

17.

The Dominion system used in Georgia erodes and undermines the reconciliation of the number of voters and the number of ballots cast, such that these figures are permitted to be unreconciled, opening the door to ballot stuffing and fraud. The collapse of reconciliation was seen in Georgia's primary and runoff elections this year, and in the November election, where it was discovered during the hand audit that 3,300 votes were found on memory sticks that were not uploaded on election night, plus in Floyd county, another 2,600 absentee ballots had not been scanned. These "found votes" reduced Biden's lead over Donald Trump[6].

[6] *Recount find thousands of Georgia votes*, Atlanta Journal-Constitution by Mark Niesse and David Wickert,11/19/20. https://www.ajc.com/politics/recount-finds-thousands-of-georgia-votes-missing-from-initial-counts/ERDRNXPH3REQTM4SOINPSEP72M/

18.

Georgia's election officials and poll workers exacerbated and helped, whether knowingly or unknowingly, the Dominion system carry out massive voter manipulation by refusing to observe statutory safeguards for absentee ballots. Election officials failed to verify signatures and check security envelopes. They barred challengers from observing the count, which also facilitated the fraud.

19.

Expert analysis of the actual vote set forth below demonstrates that at least 96,600 votes were illegally counted during the Georgia 2020 general election. All of the evidence and allegation herein is more than sufficient to place the result of the election in doubt. More evidence arrives by the day and discovery should be ordered immediately.

20.

Georgia law, (OCGA 21-5-552) provides for a contest of an election where:

> (1) Misconduct, fraud, or irregularity by any primary or election official or officials sufficient to change or place in doubt the result; . . . (3) When illegal votes have been received or legal votes rejected at the polls sufficient to change or place in doubt the result; (4) For any error in counting the votes or declaring the result of the primary or election, if such error would change the result; or (5) For any other cause which shows that another was the person legally nominated, elected, or eligible to compete in a run-off primary or election.

21.

As further set forth below, all of the above grounds have been satisfied and compel this Court to set aside the 2020 General Election results which fraudulently concluded that Mr. Biden defeated President Trump by 12,670 votes.

22.

Separately, and independently, there are sufficient Constitutional grounds to set aside the election results due to the Defendants' failure to observe statutory requirements for the processing and counting of absentee ballots which led to the tabulation of more than fifty thousand illegal ballots.

THE PARTIES

23.

Plaintiff Coreco Ja'Qan ("CJ") Pearson, is a registered voter who resides in Augusta, Georgia. He is a nominee of the Republican Party to be a Presidential Elector on behalf of the State of Georgia. He has standing to bring this action under *Carson v. Simon*, 2020 US App Lexis 34184 (8th Cir. Oct. 29, 2020). He brings this action to set aside and decertify the election results for the Office of President of the United States that was certified by the Georgia Secretary of State on November 20, 2020. The certified results showed a plurality of 12,670 votes in favor of former Vice-President Joe Biden over President Trump.

24.

Plaintiff Vikki Townsend Consiglio, is a registered voter who resides in Henry County, Georgia. She is a nominee of the Republican Party to be a Presidential Elector on behalf of the State of Georgia.

25.

Plaintiff Gloria Kay Godwin, is a registered voter who resides in Pierece County, Georgia. She is a nominee of the Republican Party to be a Presidential Elector on behalf of the State of Georgia.

26.

Plaintiff James Kenneth Carroll, is a registered voter who resides in Dodge County, Georgia. He is a nominee of the Republican Party to be a Presidential Elector on behalf of the State of Georgia.

27.

Plaintiff Carolyn Hall Fisher, is a registered voter who resides in Forsyth County, Georgia. She is a nominee of the Republican Party to be a Presidential Elector on behalf of the State of Georgia.

28.

Plaintiff Cathleen Alston Latham, is a registered voter who resides in Coffee County, Georgia. She is a nominee of the Republican Party to be a Presidential Elector on behalf of the State of Georgia.

29.

Plaintiff Jason M. Shepherd is the Chairman of the Cobb County Republican Party and brings this action in his official capacity on behalf of the Cobb County Republican Party.

30.

Plaintiff Brian Jay Van Gundy is registered voter in Gwinnett County, Georgia. He is the Assistant Secretary of the Georgia Republican Party.

31.

Defendant Governor Brian Kemp (Governor of Georgia) is named herein in his official capacity as Governor of the State of Georgia. On or about June 9, 2019, Governor Kemp bought the new Dominion Voting Systems for Georgia, budgeting 150 million dollars for the machines. Critics are quoted, "Led by Abrams, Democrats fought the legislation and pointed to cybersecurity experts who warned it would leave Georgia's elections susceptible to hacking and tampering." And "Just this week, the Fair Fight voting rights group started by [Stacy] Abrams launched a television ad critical of the bill. In a statement Thursday, the group called it "corruption at its worst" and a waste of money on "hackable voting machines."[7]

[7] *Georgia Governor Inks Law to Replace Voting Machines*, The Atlanta Journal-Constitution, AJC News Now, Credit: Copyright 2019 The Associated Press, June 2019

32.

Defendant Brad Raffensperger ("Secretary Raffensperger") is named herein in his official capacity as Secretary of State of the State of Georgia and the Chief Election Official for the State of Georgia pursuant to Georgia's Election Code and O.C.G.A. § 21-2-50. Secretary Raffensperger is a state official subject to suit in his official capacity because his office "imbues him with the responsibility to enforce the [election laws]." *Grizzle v. Kemp*, 634 F.3d 1314, 1319 (11th Cir. 2011). Secretary Raffensperger serves as the Chairperson of Georgia's State Election Board, which promulgates and enforces rules and regulations to (i) obtain uniformity in the practices and proceedings of election officials as well as legality and purity in all primaries and general elections, and (ii) be conducive to the fair, legal, and orderly conduct of primaries and general elections. *See* O.C.G.A. §§ 21-2-30(d), 21-2-31, 21-2-33.1. Secretary Raffensperger, as Georgia's chief elections officer, is further responsible for the administration of the state laws affecting voting, including the absentee voting system. *See* O.C.G.A. § 21-2-50(b).

33.

Defendants Rebecca N. Sullivan, David J. Worley, Matthew Mashburn, and Anh Le (hereinafter the "State Election Board") are members of the State Election Board in Georgia, responsible for "formulating, adopting, and promulgating such rules and regulations, consistent with law, as will be

conducive to the fair, legal, and orderly conduct of primaries and elections." O.C.G.A. § 21-2-31(2). Further, the State Election Board "promulgate[s] rules and regulations to define uniform and nondiscriminatory standards concerning what constitutes a vote and what will be counted as a vote for each category of voting system" in Georgia. O.C.G.A. § 21-2-31(7). The State Election Board, personally and through the conduct of the Board's employees, officers, agents, and servants, acted under color of state law at all times relevant to this action and are sued for emergency declaratory and injunctive relief in their official capacities.

JURISDICTION AND VENUE

34.

This Court has subject matter jurisdiction under 28 U.S.C. 1331 which provides, "The district courts shall have original jurisdiction of all civil actions arising under the Constitution, laws, or treaties of the United States.

35.

This Court also has subject matter jurisdiction under 28 U.S.C. 1343 because this action involves a federal election for President of the United States. "A significant departure from the legislative scheme for appointing Presidential electors presents a federal constitutional question." *Bush v. Gore*, 531 U.S. 98, 113 (2000) (Rehnquist, C.J., concurring); *Smiley v. Holm*, 285 U.S. 355, 365 (1932).

36.

The jurisdiction of the Court to grant declaratory relief is conferred by 28 U.S.C. 2201 and 2202 and by Rule 57 and 65, Fed. R. Civ. P. 7.

37.

This Court has jurisdiction over the related Georgia Constitutional claims and State law claims under 28 U.S.C. 1367.

38.

In Georgia, the "legislature" is the General Assembly. *See* Ga. Const. Art. III, § I, Para. I.

39.

Because the United States Constitution reserves for state legislatures the power to set the time, place, and manner of holding elections for Congress and the President, state executive officers, including but not limited to Secretary Raffensperger, have no authority to exercise that power unilaterally, much less flout existing legislation or the Constitution itself.

STATEMENT OF FACTS

40.

Plaintiffs bring this action under 42 U.S.C. §§ 1983 and 1988, and under Georgia law, O.C.G.A. § 21-2-522 to remedy deprivations of rights,

privileges, or immunities secured by the Constitution and laws of the United States and to contest the election results.

41.

The United States Constitution sets forth the authority to regulate federal elections, the Constitution provides:

> The Times, Places and Manner of holding Elections for Senators and Representatives, shall be prescribed in each State by the Legislature thereof; but the Congress may at any time by Law make or alter such Regulations, except as to the Places of choosing Senators. U.S. CONST. art. I, § 4 ("Elections Clause").

42.

With respect to the appointment of presidential electors, the Constitution provides: Each State shall appoint, in such Manner as the Legislature thereof may direct, a Number of Electors, equal to the whole Number of Senators and Representatives to which the State may be entitled in the Congress: but no Senator or Representative, or Person holding an Office of Trust or Profit under the United States, shall be appointed an Elector. U.S. CONST. art. II, § 1 ("Electors Clause").

43.

Neither Defendant is a "Legislature" as required under the Elections Clause or Electors Clause. The Legislature is "'the representative body which ma[kes] the laws of the people.'" *Smiley* 285 U.S. 365. Regulations of congressional and presidential elections, thus, "must be in accordance with

the method which the state has prescribed for legislative enactments." Id. at 367; see also *Ariz. State Legislature v. Ariz. Indep. Redistricting Comm'n*, 576 U.S. 787, 135 S. Ct. 2652, 2668 (U.S. 2015).

44.

While the Elections Clause "was not adopted to diminish a State's authority to determine its own lawmaking processes," *Ariz. State Legislature,* 135 S. Ct. at 2677, it does hold states accountable to their chosen processes when it comes to regulating federal elections, *id.* at 2668. "A significant departure from the legislative scheme for appointing Presidential electors presents a federal constitutional question." *Bush,* 531 U.S. at 113 (Rehnquist, C.J., concurring); *Smiley,* 285 U.S. at 365.

45.

Plaintiffs also bring this action under Georgia law, O.C.G.A. § 21-2-522, Grounds for Contest:

> A result of a primary or election may be contested on one or more of the following grounds:
>
> (1) Misconduct, fraud, or irregularity by any primary or election official or officials sufficient to change or place in doubt the result;
>
> (2) When the defendant is ineligible for the nomination or office in dispute;
>
> (3) When illegal votes have been received or legal votes rejected at the polls sufficient to change or place in doubt the result;
>
> (4) For any error in counting the votes or declaring the result of the primary or election, if such error would change the result; or

> (5) For any other cause which shows that another was the person legally nominated, elected, or eligible to compete in a run-off primary or election.

O.C.G.A. § 21-2-522.

46.

Under O.C.G.A. § 21-2-10, Presidential Electors are elected.

47.

Under O.C.G.A. § 21-2-386(a)(l)(B), the Georgia Legislature instructed the county registrars and clerks (the "County Officials") to handle the absentee ballots as directed therein. The Georgia Legislature set forth the procedures to be used by each municipality for appointing the absentee ballot clerks to ensure that such clerks would "perform the duties set forth in this Article." *See* O.C.G.A. § 21-2-380.1.

48.

The Georgia Election Code instructs those who handle absentee ballots to follow a clear procedure:

> Upon receipt of each [absentee] ballot, a registrar or clerk ***shall*** write the day and hour of the receipt of the ballot on its envelope. The registrar or clerk ***shall*** then compare the identifying information on the oath with the information on file in his or her office, ***shall*** compare the signature or make on the oath with the signature or mark on the absentee elector's voter card or the most recent update to such absentee elector's voter registration card and application for absentee ballot or a facsimile of said signature or maker taken from said card or application, and ***shall,*** if the information and signature appear to be valid and other identifying information appears to be correct, so certify by signing or initialing his or her name below the

> voter's oath. Each elector's name so certified shall be listed by the registrar or clerk on the numbered list of absentee voters prepared for his or her precinct.

O.C.G.A. § 21-2-386(a)(l)(B) (emphasis added).

49.

Under O.C.G.A. § 21-2-386(a)(l)(C), the Georgia Legislature also established a clear and efficient process to be used by County Officials if they determine that an elector has failed to sign the oath on the outside envelope enclosing the ballot or that the signature does not conform with the signature on file in the registrar's or clerk's office (a "defective absentee ballot").

50.

The Georgia Legislature also provided for the steps to be followed by County Officials with respect to defective absentee ballots:

> ***If the elector has failed to sign the oath, or if the signature does not appear to be valid***, or if the elector has failed to furnish required information ***or information so furnished does not conform with that on file in the registrar's or clerk's office***, or if the elector is otherwise found disqualified to vote, the registrar or clerk shall write across the face of the envelope "Rejected," giving the reason therefor. The board of registrars or absentee ballot clerk *shall* promptly ***notify the elector of such rejection***, a copy of which notification ***shall*** be retained in the files of the board of registrars or absentee ballot clerk for at least one year.

O.C.G.A. § 21-2 -386(a) (l)(C) (emphasis added).

I. DEFENDANTS' UNAUTHORIZED ACTIONS VIOLATED THE GEORGIA ELECTION CODE AND CAUSED THE PROCESSING OF DEFECTIVE ABSENTEE BALLOTS.

51.

Notwithstanding the clarity of the applicable statutes and the constitutional authority for the Georgia Legislature's actions, on March 6, 2020, the Secretary of State of the State of Georgia, Secretary Raffensperger, and the State Election Board, who administer the state elections (the "Administrators") entered into a "Compromise and Settlement Agreement and Release" (the "Litigation Settlement") with the Democratic Party of Georgia, Inc., the Democrat Senatorial Campaign Committee, and the Democratic Congressional Campaign Committee (collectively, the "Democrat Party Agencies"), setting forth different standards to be followed by the clerks and registrars in processing absentee ballots in the State of Georgia[8].

52.

Under the Settlement, however, the Administrators agreed to change the statutorily prescribed manner of handling absentee ballots in a manner that is not consistent with the laws promulgated by the Georgia Legislature for elections in this state.

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[8] *See Democratic Party of Georgia, Inc., et al. v. Raffensperger, et al.,* Civil Action File No. 1:1 9-cv-05028-WMR, United States District Court for the Northern District of Georgia, Atlanta Division, Doc. 56-1.

53.

The Settlement provides that the Secretary of State would issue an "Official Election Bulletin" to county Administrators overriding the statutory procedures prescribed for those officials. That power, however, does not belong to the Secretary of State under the United States Constitution.

54.

The Settlement also changed the signature requirement reducing it to a broad process with discretion, rather than enforcement of the signature requirement as statutorily required under O.C.G.A. 21-2-386(a)(l).

55.

The Georgia Legislature instructed county registers and clerks (the "County Officials") regarding the handling of absentee ballots in O.C.G.A. S 21-2-386(a)(1)(B), 21-2-380.1. The Georgia Election Code instructs those who handle absentee ballots to follow a clear procedure:

> Upon receipt of each absentee ballot, a registrar or clerk shall write the day and hour of the receipt of the ballot on its envelope. The registrar or clerk shall then compare the identifying information on the oath with the information on file in his or her office, shall compare the signature or make on the oath with the signature or mark on the absentee elector's voter card or the most recent update to such absent elector's voter registration card and application for absentee ballot or a facsimile of said signature or maker taken from said card or application, and shall, if the information and signature appear to be valid and other identifying information appears to be correct, so certify by signing or initialing his or her name below the voter's oath …

O.C.G.A. S 21-2-386(a)(1)(B).

56.

The Georgia Legislature prescribed procedures to ensure that any request for an absentee ballot must be accompanied by sufficient identification of the elector's identity. *See* O.C.G.A. *§* 21-2-38 l(b)(1) (providing, in pertinent part, "In order to be found eligible to vote an absentee ballot in person at the registrar's office or absentee ballot clerk's office, such person shall show one of the forms of identification listed in Code Section 21-2-417 ...").

57.

An Affiant testified, under oath, that "It was also of particular interest to me to see that signatures were not being verified and that there were no corresponding envelopes seen in site." (Attached hereto as Exh. 10, Mayra Romera, at par. 7).

58.

To reflect the very reason for process, it was documented that in the primary election, prior to the November 3, 2020 Presidential election, many ballots got to voters after the election. Further it was confirmed that "Untold thousands of absentee ballot requests went unfulfilled, and tens of thousands of mailed ballots were rejected for multiple reasons including arriving too late

to be counted. See the Associated Press, *Vote-by-Mail worries: A leaky pipeline in many states*, August 8, 2020.[9]

59.

Pursuant to the Settlement, the Administrators delegated their responsibilities for determining when there was a signature mismatch by considering in good faith only partisan-based training - "additional guidance and training materials" drafted by the Democrat Party Agencies' representatives contradicting O.C.G.A. § 21-2-31.

B. Unlawful Early Processing of Absentee Ballots

60.

In April 2020, the State Election Board adopted on a purportedly "Emergency Basis" Secretary of State Rule 183-1-14-0.9-.15, Processing Ballots Prior to Election Day. Under this rule, county election officials are authorized to begin processing absentee ballots up to three weeks befoe election day. Thus, the rule provides in part that "(1) Beginning at 8:00 AM on the third Monday prior to Election Day, the county election superintendent **shall be authorized to open the outer envelope of accepted absentee ballots** …" (Emphasis added).

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[9] *https://apnews.com/article/u-s-news-ap-top-news-election-2020-technology-politics-52e87011f4d04e41bfffccd64fc878e7*

61.

Rule 183-1-14-0.9-.15 is in direct and irreconcilable conflict with O.C.G.A. § 21-2-386(a)(2), which prohibits the opening of absentee ballots until election day:

> **After the opening of the polls** on the day of the primary, election, or runoff, the registrars or absentee ballot clerks **shall be authorized to open the outer envelope** on which is printed the oath of the elector in such a manner as not to destroy the oath printed thereon; provided, however, that the registrars or absentee ballot clerk shall not be authorized to remove the contents of such outer envelope or to open the inner envelope marked "Official Absentee Ballot," except as otherwise provided in this Code section.

(Emphasis added).

62.

In plain terms, the statute clearly prohibits opening absentee ballots prior to election day, while the rule authorizes doing so three weeks before election day. There is no reconciling this conflict. The State Election Board has authority under O.C.G.A. § 21-2-31 to adopt lawful and legal rules and regulations, but no authority to promulgate a regulation that is directly contrary to an unambiguous statute. Rule 183-1-14-0.9-.15 is therefore plainly and indisputably unlawful.

63.

The State Election Board re-adopted Rule 183-1-14-0.9-.15 on November 23, 2020 for the upcoming January 2021 runoff election.

C. UNLAWFUL AUDIT PROCEDURES

64.

According to Secretary Raffensperger, in the presidential general election, 2,457,880 votes were cast in Georgia for President Donald J. Trump, and 2,472,002 votes were cast for Joseph R. Biden, which narrowed in Donald Trump's favor after the most recent recount.

65.

Secretary Raffensperger declared that for the Hand Recount:

> Per the instructions given to counties as they conduct their audit triggered full hand recounts, designated monitors will be given complete access to observe the process from the beginning. While the audit triggered recount must be open to the public and media, designated monitors will be able to observe more closely. The general public and the press will be restricted to a public viewing area. Designated monitors will be able to watch the recount while standing close to the elections' workers conducting the recount.
>
> Political parties are allowed to designate a minimum of two monitors per county at a ratio of one monitor per party for every ten audit boards in a county... Beyond being able to watch to ensure the recount is conducted fairly and securely, the two-person audit boards conducting the hand recount call out the votes as they are recounted , providing monitors and the public an additional way to keep tabs on the process.[10]

[10] *Office of Brad Raffensperger, Monitors Closely Observing Audit-Triggered Full Hand Recount: Transparency is Built Into Process*, https://sos.ga.gov/index.php/elections/monitors_closely_observing_audit-triggered_full_hand_recount_transparency_is_built_into_process

66.

The audit was conducted O.C.G.A. § 21-2-498. This code section requires that audits be completed "in public view" and authorizes the State Board of Elections to promulgate regulations to administer an audit "to ensure that collection of validly cast ballots is complete, accurate and trustworthy throughout the audit."

67.

Plaintiffs can show that Democrat-majority counties provided political parties and candidates, including the Trump Campaign, no meaningful access or actual opportunity to review and assess the validity of mail-in ballots during the pre-canvassing meetings. While in the audit or recount, they witnessed Trump votes being put into Biden piles.

68.

Non-parties Amanda Coleman and Maria Diedrich are two individuals who volunteered to serve as designated monitors for the Donald J. Trump Presidential Campaign, Inc. (the "Trump Campaign") on behalf of the Georgia Republican Party (the "Republican Party") at the Hand Recount. (Attached hereto and incorporated herein as Exhibits 2 and 3), respectively, are true and correct copies of (1) the Affidavit of Amanda Coleman in Support of Plaintiffs' Motion for Temporary Restraining Order (the "Coleman Affidavit"), and (2) the Affidavit of Maria Diedrich in Support of Plaintiffs'

Motion for Temporary Restraining Order (the "Diedrich Affidavit"). (See Exh. 11, Coleman Aff.,2; Exh. 12, Diedrich Aff., 2.)

69.

The Affidavits set forth various conduct amounting to federal crimes, clear improprieties, insufficiencies, and improper handling of ballots by County Officials and their employees that Ms. Coleman and Ms. Diedrich personally observed while monitoring the Hand Recount. *(See* Exh. 11, Coleman Aff., 3-10; Exh. 12, Diedrich Aff., 4-14.)

70.

As a result of her observations of the Hand Recount as a Republican Party monitor, Ms. Diedrich declared, "There had been no meaningful way to review or audit any activity" at the Hand Recount. *(See* Exh. 12, Diedrich Aff.,14.)

71.

As a result of their observations of the Hand Recount as Republican Party monitors, Ms. Coleman likewise declared, "There was no way to tell if any counting was accurate or if the activity was proper." (See Exh. 12, Coleman Aff.,10).

72.

On Election Day, when the Republican poll watchers were, for a limited time, present and allowed to observe in various polling locations, they

observed and reported numerous instances of election workers failing to follow the statutory mandates relating to two critical requirements, among other issues:

(1) a voter's right to spoil their mail-in ballot at their polling place on election day and to then vote in-person, and

(2) the ability for voters to vote provisionally on election day when a mail-in ballot has already been received for them, but when they did not cast those mail-in ballots, who sought to vote in person during early voting but was told she already voted; she emphasized that she had not. The clerk told her he would add her manually with no explanation as to who or how someone voted using her name. (Attached hereto as Exh. 13, Aff. Ursula Wolf)

73.

Another observer for the ballot recount testified that "*at no time did I witness any Recounter or individual participate in the recount verifying signatures [on mail-in ballots].*" (Attached hereto as Exh. 14, Nicholas Zeher Aff).

74.

In some counties, there was no actual "hand" recounting of the ballots during the Hand Recount, but rather, County Officials and their employees

simply conducted another machine count of the *same* ballots. (See. Exh. 9, 10). That will not reveal the massive fraud of which plaintiffs complain.

75.

A large number of ballots were identical and likely fraudulent. An Affiant explains that she observed a batch of utterly pristine ballots:

> 14. Most of the ballots had already been handled; they had been written on by people, and the edges were worn. They showed obvious use. However, one batch stood out. It was pristine. There was a difference in the texture of the paper - it was if they were intended for absentee use but had not been used for that purposes. There was a difference in the feel.
>
> 15. These different ballots included a slight depressed pre-fold so they could be easily folded and unfolded for use in the scanning machines. There were no markings on the ballots to show where they had com~ from, or where they had been processed. These stood out.
>
> 16. In my 20 years of experience of handling ballots, I observed that the markings for the candidates on these ballots were unusually uniform, perhaps even with a ballot-marking device. By my estimate in observing these ballots, approximately 98% constituted votes for Joe Biden. I only observed two of these ballots as votes for President Donald J. Trump." (See Exh. 15 Attached hereto).

76.

The same Affiant further testified specifically to the breach of the chain of custody of the voting machines the night before the election stating:

> we typically receive the machines, the ballot marking devices – on the Friday before the election, with a chain of custody letter to be signed on Sunday, indicating that we had received the machines and the counts on the machines when received, and that the machines have been sealed. **In this case, we were asked to sign the chain of custody letter on Sunday, even though the machines were not delivered until 2:00 AM in the morning on Election Day.**

> The Milton precinct received its machines at 1:00 AM in the morning on Election Day. This is unacceptable and voting machines should [not] be out of custody prior to an Election Day. *Id*.

II. EVIDENCE OF FRAUD

A PATTERN SHOWING THE ABSENCE OF MISTAKE

77.

The stunning pattern of the nature and acts of fraud demonstrate an absence of mistake.

78.

The same Affiant further explained, in sworn testimony, that the breach included: "when we did receive the machines, they were not sealed or locked, the serial numbers were not what were reflected on the related documentation…" *See Id.*

79.

An affiant testified that "While in Henry County, I personally witnessed ballots cast for Donald Trump being placed in the pile for Joseph Biden, I witnessed this happen at table "A".' (See Exh. 14, par. 27).

80.

The Affiant further testified, that "when this was brought to Ms. Pitts attention, it was met with extreme hostility. At no time did I witness any ballot cast for Joseph Biden be placed in the pile for Donald Trump. (See Exh. 14, par. 28).

81.

Another Affiant in the mail-in ballot and absentee ballot recounting process, testified in her sworn affidavit, that "on November 16, 2020 … It was also of particular interest to me to see that signatures were not being verified and there were no corresponding envelopes seen in sight." (See Exh. 10, at Par. 7).

82.

Yet another Affiant, in the recount process, testified that he received push back and a lack of any cooperation and was even threatened as if he did something wrong, when he pointed out the failure to follow the rules with the observers while open mail-in ballot re-counting was occurring, stating:

> "However, as an observer, I observed that the precinct had twelve (12) counting tables, but only one (1) monitor from the Republican Party. I brought it up to Erica Johnston since the recount rules provided for one (1) monitor from each Party per ten (10) tables or part thereof…"

(See Attached hereto, Exh. 16, Ibrahim Reyes Aff.)

83.

Another Affiant explains a pattern of behavior that is alarming, in his position as an observer in the recount on absentee ballots with barcodes, he testified:

> ***I witnessed two poll workers placing already separated paper machine receipt ballots with barcodes in the Trump tray, placing them in to the Biden tray.*** I also witnessed the same two poll workers putting the already separated paper receipt b*a*llots in

> the "No Vote" and "Jorgensen" tray, and removing them and putting them inside the Biden tray, They then took out all of the ballots out of the Biden tray and stacked them on the table, writing on the count ballot sheet.
>
> *(*See Attached hereto, Exh.17*,* pars. 4-5, Aff. of Consetta Johson*).*

84.

Another Affiant, a Democrat, testified in his sworn affidavit, that before he was forced to move back to where he could not see, he had in fact seen "absentee ballots for Trump inserted into Biden's stack, and counted as Biden votes. This occurred a few times". (See attached hereto, Exh. 18 at Par. 12, Aff. of Carlos Silva).

85.

Yet another Affiant testified about the lack of process and the hostility only towards the Republican party, which is a violation of the Equal Protection Clause. He testified:

> I also observed throughout my three days in Atlanta, not once did anyone verify these ballots. In fact, there was no authentication process in place and no envelopes were observed or allowed to be observed. I saw hostility towards Republican observers but never towards Democrat observers. Both were identified by badges.

(*See Id*., at pars. 13-14).

86.

Another Affiant explained that his ballot was not only not processed in accordance with Election law, he witnessed people reviewing his ballot to decide where to place it, which violated the privacy of his ballot, and when he

tried to report it to a voter fraud line, he never received any contact or cooperation stating:

> "I voted early on October 12 at the precinct at Lynwood Park … Because of irregularities at the polling location, I called the voter fraud line to ask why persons were discussing my ballot and reviewing it to decide where to place it. When I called the state fraud line, I was directed to a worker in the office of the Secretary of State…"

(See Attached hereto, Exh. 19, Andrea ONeal Aff, at par. 3).

87.

He further testified that when he was an Observer at the Lithonia location, he saw many irregularities, and specifically "saw an auditor sort Biden votes that he collected and sorted into ten ballot stacks, which [the auditor] did not show anyone." Id. at p. 8.

88.

Another Affiant testified about the use of different paper for ballots, that would constitute fraud stating:

> I noticed that almost all of the ballots I reviewed were for Biden. Many batches went 100% for Biden. I also observed that the watermark on at least 3 ballots were solid gray instead of transparent, leading me to believe the ballot was counterfeit. I challenged this and the Elections Director said it was a legitimate ballot and was due to the use of different printers. Many ballots had markings for Biden only, and no markings on the rest of the ballot.

(See Attached hereto, Exh. 20, Aff of Debra J. Fisher, at pars. 4, 5, 6).

89.

An Affiant testified, that while at the Audit, '**While in Henry County, I personally witnessed ballots cast for Donald Trump being placed in the pile for Joseph Biden. I witnessed this happen at table "A"**". (*See* attached hereto as Exh. 22, Kevin Peterford, at par. 29). Another Affiant testified, that "I witnessed two poll workers placing already separated paper machine receipt ballots with barcodes in the Trump tray, placing them in to the Biden tray. I also witnessed the same two poll workers putting the already separated paper receipt abllots in the "No Vote" and "Jorgensen" tray, and removing them and putting them inside the Biden tray, They then took out all of the ballots out of the Biden tray and stacked them on the table, writing on the count ballot sheet. (See Exh. 17, Johnson, pars. 4-5).

90.

Another Affiant, a Democrat, testified in his sworn affidavit, before he was forced to move back to where he could not see, he had in fact seen**, "*I also saw absentee ballots for Trump inserted***

***into Biden's stack, and counted as Biden votes. This occurred a few times*".** (See Exh. 18, Par. 12).

91.

A Republican National Committee monitor in Georgia's election recount, Hale Soucie, told an undercover journalist there are individuals counting ballots who have made continuous errors," writes O'Keefe. Project Veritas, Watch: Latest Project Veritas Video reveals "Multiple Ballots Meant for Trump Went to Biden in Georgia.[11]

B. THE VOTING MACHINES, SECRECY SOFTWARE USED BY VOTING MACHINES THROUGHOUT GEORGIA IS CRUCIAL

92.

These violations of federal and state laws impacted the election of November 3, 2020 and set the predicate for the evidence of deliberate fraudulent conduct, manipulation, and lack of mistake that follows. The commonality and statewide nature of these legal violations renders certification of the legal vote untenable and warrants immediate

[11] https://hannity.com/media-room/watch-latest-project-veritas-video-reveals-multiple-ballots-meant-for-trump-went-to-biden-in-georgia/

impoundment of voting machines and software used throughout Georgia for expert inspection and retrieval of the software.

93.

An Affiant, who is a network & information cyber-security expert, under sworn testimony explains that after studying the user manual for Dominion Voting Systems Democracy software, he learned that the information about scanned **ballots can be tracked inside the software system for Dominion**:

> (a) When bulk ballot scanning and tabulation begins, the "ImageCast Central" workstation operator will load a batch of ballots into the scanner feed tray and then start the scanning procedure within the software menu. The scanner then begins to scan the ballots which were loaded into the feed tray while the "ImageCast Central" software application tabulates votes in real-time. Information about scanned ballots can be tracked inside the "ImageCast Central" software application.

(*See* attached hereto Exh 22, Declaration of Ronald Watkins, at par. 11).

94.

Affiant further explains that the central operator can remove or discard batches of votes. "After all of the ballots loaded into the scanner's feed tray have been through the scanner, the "ImageCast Central" operator will remove the ballots from the tray then have the option to either "Accept Batch" or "Discard Batch" on the scanning menu …. "(*Id.* at par. 8).

95.

Affiant further testifies that the Dominion/ Smartmatic user manual itself makes clear that the system allows for threshold settings to be set to mark all ballots as "problem ballots" for *discretionary determinations* on where the vote goes. It states:

> *During the scanning process, the "ImageCast Central" software will detect how much of a percent coverage of the oval was filled in by the voter. The Dominion customer determines the thresholds of which the oval needs to be covered by a mark in order to qualify as a valid vote. If a ballot has a marginal mark which did not meet the specific thresholds set by the customer, then the ballot is considered a "problem ballot" and may be set aside into a folder named "NotCastImages". Through creatively tweaking the oval coverage threshold settings it should be possible to set thresholds in such a way that a non-trivial amount of ballots are marked "problem ballots" and sent to the "NotCastImages" folder. It is possible for an administrator of the ImageCast Central work station to view all images of scanned ballots which were deemed "problem ballots" by simply navigating via the standard "Windows File Explorer" to the folder named "NotCastImages" which holds ballot scans of "problem ballots". It is possible for an administrator of the "ImageCast Central" workstation to view and delete any individual ballot scans from the "NotCastImages" folder by simply using the standard Windows delete and recycle bin functions provided by the Windows 10 Pro operating system.*

Id. at pars. 9-10.

96.

The Affiant further explains the vulnerabilities in the system when the copy of the selected ballots that are approved in the Results folder are made

to a flash memory card – and that is connected to a Windows computer stating:

> *It is possible for an administrator of the "ImageCast Central" workstation to view and delete any individual ballot scans from the "NotCastImages" folder by simply using the standard Windows delete and recycle bin functions provided by the Windows 10 Pro operating system. … The upload process is just a simple copying of a "Results" folder containing vote tallies to a flash memory card connected to the "Windows 10 Pro" machine. The copy process uses the standard drag-n-drop or copy/paste mechanisms within the ubiquitous "Windows File Explorer". While a simple procedure, this process may be error prone and* ***is very vulnerable to malicious administrators****.*

Id. at par. 11-13 (emphasis supplied).

97.

It was announced on "Monday, [July 29, 2019], [that] Governor Kemp awarded a contract for 30,000 new voting machines to Dominion Voting Systems, scrapping the state's 17-year-old electronic voting equipment and replacing it with touchscreens that print out paper ballots."[12] Critics are quoted: "Led by Abrams, Democrats fought the legislation and pointed to cybersecurity experts who warned it would leave Georgia's elections susceptible to hacking and tampering." And "Just this week, the Fair Fight voting rights group started by [Stacy] Abrams launched a television ad

[12] *Georgia Buys New Voting Machines for 2020 Presidential Election, by Mark Niesse, the Atlanta Journal-Constitution, July 30, 2019, https://www.ajc.com/news/state--regional-govt--politics/georgia-awards-contract-for-new-election-system-dominion-voting/tHh3V8KZnZivJoVzZRLO4O/*

critical of the bill. In a statement Thursday, the group called it "corruption at its worst" and a waste of money on "hackable voting machines."[13]

98.

It was further reported in 2019 that the new Dominion Voting Machines in Georgia "[w]ith Georgia's current voting system, there's **no way to guarantee that electronic ballots accurately reflect the choices of voters because there's no paper backup to verify results**, with it being reported that:

> (a) Recounts are meaningless on the direct-recording electronic voting machines because they simply reproduce the same numbers they originally generated.
>
> (b) But paper ballots alone won't protect the sanctity of elections on the new touchscreens, called ballot-marking devices.
>
> (c) The new election system depends on voters to verify the printed text of their choices on their ballots, a step that many voters might not take. The State Election Board hasn't yet created regulations for how recounts and audits will be conducted. And paper ballots embed selections in bar codes that are only readable by scanning machines, leaving Georgians uncertain whether the bar codes match their votes.[14]

[13] *Georgia Governor Inks Law to Replace Voting Machines, The Atlanta Journal-Constitution, AJC News Now, by Greg Bluestein and Mark Niesse, June 14, 2019; Credit: Copyright 2019 The Associated Press, June 2019*

i. *As part of the scheme and artifice to defraud the plaintiffs, the candidates and the voters of undiminished and unaltered voting results in a free and legal election, the Defendants and other persons known and unknown committed the following violations of law:*

50 U.S.C. § 20701 requires the retention and preservation of records and papers by officers of elections under penalty of fine and imprisonment:

> **§ 20701. Retention and preservation of records and papers by officers of elections; deposit with custodian; penalty for violation**
>
> Every officer of election shall retain and preserve, for a period of twenty-two months from the date of any general, special, or primary election of which candidates for the office of President, Vice President, presidential elector, Member of the Senate, Member of the House of Representatives, or Resident Commissioner from the Commonwealth of Puerto Rico are voted for, **all records and papers which come into his possession relating to any application, registration, payment of poll tax, or other act requisite to voting in such election,** except that, when required by law, such records and papers may be delivered to another officer of election and except that, if a State or the Commonwealth of Puerto Rico designates a custodian to retain and preserve these records and papers at a specified place, then such records and papers may be deposited with such custodian, and the duty to retain and preserve any record or paper so deposited shall devolve upon such custodian. Any officer of election or custodian who willfully fails to comply with this section shall be fined not more than $1,000 or imprisoned not more than one year, or both.

50 U.S.C.§ 20701.

99.

In the primaries it was confirmed that, "The rapid introduction of new technologies and processes in state voting systems heightens the risk of

foreign interference and insider tampering. That's true even if simple human error or local maneuvering for political advantage are more likely threats[15].

100.

A Penn Wharton Study from 2016 concluded that "Voters and their representatives in government, often prompted by news of high-profile voting problems, also have raised concerns about the reliability and integrity of the voting process, and have increasingly called for the use of modern technology such as laptops and tablets to improve convenience."[16]

101.

As evidence of the defects or features of the Dominion Democracy Suite, as described above, the same Dominion Democracy Suite was denied certification in Texas by the Secretary of State on January 24, 2020 specifically because of a **lack of evidence of efficiency and accuracy and to be safe from fraud or unauthorized manipulation.**[17]

[15] *See Threats to Georgia Elections Loom Despite New Paper Ballot Voting, By Mark Niesse, The Atlanta Journal-Constitution and (The AP, Vote-by-Mail worries: A leaky pipeline in many states, August 8, 2020).*

[16] Penn Wharton Study by Matt Caufield, The Business of Voting, July 2018.

[17] Attached hereto, Exh. 23, copy of Report of Review of Dominion Voting Systems Democracy Suite 5.5-A Elections Division by the Secretary of State's office, Elections Division, January 24, 2020.

102.

Plaintiffs have since learned that the "glitches" in the Dominion system–that have the uniform effect of taking votes from Trump and shifting them to Biden—have been widely reported in the press and confirmed by the analysis of independent experts.

103.

Plaintiffs can show, through expert and fact witnesses that:

c. Dominion/ Smartmatic Systems Have Massive End User Vulnerabilities.

1. Users on the ground have full admin privileges to machines and software. Having been created to "rig" elections, the Dominion system is designed to facilitate vulnerability and allow a select few to determine which votes will be counted in any election. Workers were responsible for moving ballot data from polling place to the collector's office and inputting it into the correct folder. Any anomaly, such as pen drips or bleeds, results in a ballot being rejected. It is then handed over to a poll worker to analyze and decide if it should count. This creates massive opportunity for purely discretionary and improper vote "adjudication."

2. Affiant witness (name redacted for security reasons[18]), in his sworn testimony explains he was selected for the national security guard detail of the President of Venezuela, and that he witnessed the creation of Smartmatic for the purpose of election vote manipulation to insure Venezuelan dictator Hugo Chavez never lost an election and he saw it work. Id.

   "The purpose of this conspiracy was to create and operate a voting system that could change the votes in elections from votes against

> persons running the Venezuelan government to votes in their favor in order to maintain control of the government."

(*See* Exh. 2, pars. 6, 9, 10).

104.

Smartmatic's incorporators and inventors have backgrounds evidencing their foreign connections, including Venezuela and Serbia, specifically its identified inventors:

> Applicant: SMARTMATIC, CORP.
>
> Inventors: Lino Iglesias, Roger Pinate, Antonio Mugica, Paul Babic, Jeffrey Naveda, Dany Farina, Rodrigo Meneses, Salvador Ponticelli, Gisela Goncalves, Yrem Caruso.[19]

105.

The presence of Smartmatic in the United States—owned by foreign nationals, and Dominion, a Canadian company with its offices such as the Office of General Counsel in Germany, would have to be approved by CFIUS. CFIUS was created in 1988 by the Exon-Florio Amendment to the Defense Production Act of 1950. CFIUS' authorizing statute was amended by the Foreign Investment and National Security Act of 2007 (FINSA).

> As amended, section 721 of the DPA directs "the President, acting through [CFIUS]," to review a "**covered transaction to determine the effects of the transaction on the national security of the United States.**" 50 U.S.C. app. § 2170(b)(1)(A). Section 721 defines

19 https://patents.justia.com/assignee/smartmatic-corp

> a covered transaction as "any merger, acquisition, or takeover …, by or with any foreign person which could result in foreign control of any person engaged in interstate commerce in the United States." Id. § 2170(a)(3). *Ralls Corp. v. Comm. on Foreign Inv.*, 758 F.3d 296, 302, 411 U.S. App. D.C. 105, 111, (2014). Review of covered transactions under section 721 begins with CFIUS. As noted, CFIUS is chaired by the Treasury Secretary and its members include the heads of various federal agencies and other high-ranking Government officials with foreign policy, national security and economic responsibilities.

106.

Then Congresswoman Carolyn Maloney wrote October 6, 2006 to the Secretary of Treasury, Henry M. Paulson, Jr., Objecting to approval of Dominion/Smartmatic by CFIUS because of its corrupt Venezuelan origination, ownership and control. (See attached hereto as Exh. 24, Carolyn Maloney Letter of October 6, 2006). Our own government has long known of this foreign interference on our most important right to vote, and it had either responded with incompetence, negligence, willful blindness, or abject corruption. In every CFIUS case, there are two TS/SCI reports generated. One by the ODNI on the threat and one by DHS on risk to critical infrastructure. Smartmatic was a known problem when it was nonetheless approved by CFIUS.

107.

The Wall Street Journal in 2006 did an investigative piece and found that, “Smartmatic came to prominence in 2004 when its machines were used

in an election to recall President Chávez, which Mr. Chávez won handily -- and which the Venezuelan opposition said was riddled with fraud. Smartmatic put together a consortium to conduct the recall elections, including a company called Bizta Corp., in which Smartmatic owners had a large stake. For a time, the Venezuelan government had a 28% stake in Bizta in exchange for a loan.'[20] …"Bizta paid off the loan in 2004, and Smartmatic bought the company the following year. But accusations of Chávez government control of Smartmatic never ended, especially since Smartmatic scrapped a simple corporate structure, in which it was based in the U.S. with a Venezuelan subsidiary, for a far more complex arrangement. The company said it made the change for tax reasons, but critics, including Rep. Carolyn Maloney (D., N.Y.) and TV journalist Lou Dobbs, pounded the company for alleged links to the Chávez regime. *Id*. Since its purchase by Smartmatic, Sequoia's sales have risen sharply to a projected $200 million in 2006, said Smartmatic's chief executive, Anthony Mugica." *Id.*

108.

Indeed, Mr. Cobucci testified, through his sworn affidavit, that he born in Venezuela, is cousins with Antonio ('Anthony') Mugica, and he has

[20] *See WSJ.com, Smartmatic to Sell U.S. Unit, End Probe into Venezuelan Links, by Bob Davis, 12/22/2006,* h*ttps://www.wsj.com/articles/SB116674617078557263*

personal knowledge of the fact that Anthony Mugica incorporated Smartmatic in the U.S. in 2000 with other family members in Venezuela listed as owners. He also has personal knowledge that Anthony Mugica manipulated Smartmatic to ensure the election for Chavez in the 2004 Referendum in Venezuela. He also testified, through his sworn affidavit, that Anthony Mugica received tens of millions of dollars from 2003- 2015 from the Venezuelan government to ensure Smartmatic technology would be implemented around the world, including in the U.S. (See attached hereto, Exh. 25, Juan Carlos Cobucci Aff.)

109.

Another Affiant witness testifies that in Venezuela, she was in an official position related to elections and witnessed manipulations of petitions to prevent a removal of President Chavez and because she protested, she was summarily dismissed. Corroborating the testimony of our secret witness, and our witness Mr. Cobucci, cousin of Anthony Mugica, who began Smartmatic, and this witness explains the vulnerabilities of the electronic voting system and Smartmatica to such manipulations. (See Exh. 3, Diaz Cardozo Aff).

110.

Specific vulnerabilities of the systems in question that have been documented or reported include:

a. Barcodes can override the voters' vote: As one University of California, Berkeley study shows, "In all three of these machines [including Dominion Voting Systems] the ballot marking printer is in the same paper path as the mechanism to deposit marked ballots into an attached ballot box. This opens up a very serious security vulnerability: the voting machine can make the paper ballot (to add votes or spoil already-cast votes) after the last time the voter sees the paper, and then deposit that marked ballot into the ballot box without the possibility of detection." (See Exh. 7). [21]

b. Voting machines were able to be connected to the internet by way of laptops that were obviously internet accessible. If one laptop was connected to the internet, the entire precinct was compromised.

c. We … discovered that at least some jurisdictions were not aware that their systems were online," said Kevin Skoglund, an independent security consultant who conducted the research with nine others, all of them long-time security professionals and academics with expertise in election security. Vice. August 2019. [22]

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[21] *Ballot Marking Devices (BMDs) Cannot Assure the Will of the Voters,* Andrew W. Appel, Richard T. DeMillo, University of California, Berkeley, 12/27/2019.

[22] *Exclusive: Critical U.S. Election Systems Have Been Left Exposed Online Despite Official Denials, Motherboard Tech by Vice, by Kim Zetter, August 8, 2019, https://www.vice.com/en/article/3kxzk9/exclusive-critical-us-election-systems-have-been-left-exposed-online-despite-official-denials*

d. October 6, 2006 – Congresswoman Carolyn Maloney called on Secretary of Treasury Henry Paulson to conduct an investigation into Smartmatic based on its foreign ownership and ties to Venezuela. (See Exh. 24)

e. Congresswoman Maloney wrote that "It is undisputed that Smartmatic is foreign owned and it has acquired Sequoia … Smartmatica now acknowledged that Antonio Mugica, a Venezuelan businessman has a controlling interest in Smartmatica, but the company has not revealed who all other Smartmatic owners are." *Id*.

f. Dominion "got into trouble" with several subsidiaries it used over alleged cases of fraud. One subsidiary is Smartmatic, a company "that has played a significant role in the U.S. market over the last decade," according to a report published by UK-based AccessWire[23].

g. Litigation over Smartmatic "glitches" alleges they impacted the 2010 and 2013 mid-term elections in the Philippines, raising questions of cheating and fraud. An independent review of the source codes used in the machines found multiple problems, which concluded, "The software

[23] *Voting Technology Companies in the U.S. – Their Histories and Present Contributions, Access Wire, August 10, 2017, https://www.accesswire.com/471912/Voting-Technology-Companies-in-the-US--Their-Histories.*

inventory provided by Smartmatic is inadequate, … which brings into question the software credibility…"[24]

h. Dominion acquired Sequoia Voting Systems as well as Premier Election Solutions (formerly part of Diebold, which sold Premier to ES&S in 2009, until antitrust issues forced ES&S to sell Premier, which then was acquired by Dominion).[25].

i. Dominion entered into a 2009 contract with Smartmatic and provided Smartmatic with the PCOS machines (optical scanners) that were used in the 2010 Philippine election—the biggest automated election run by a private company. The international community hailed the automation of that first election in the Philippines.[26] The results' transmission reached 90% of votes four hours after polls closed and Filipinos knew for the first time who would be their new president on Election Day. In keeping with local election law requirements, Smartmatic and Dominion were required to provide the source code of

[24] *Smartmatic-TIM running out of time to fix glitches, ABS-CBN News, May 4, 2010 https://news.abs-cbn.com/nation/05/04/10/smartmatic-tim-running-out-time-fix-glitches*
[25] *The Business of Voting*, Penn Wharton, Caufield, p. 16.
[26] *Smartmatic-TIM running out of time to fix glitches, ABS-CBN News, May 4, 2010 https://news.abs-cbn.com/nation/05/04/10/smartmatic-tim-running-out-time-fix-glitches*

the voting machines prior to elections so that it could be independently verified.[27]

j. In late December of 2019, three Democrat Senators, Warren, Klobuchar, Wyden, and House Member Mark Pocan wrote about their ***'particularized concerns that secretive & "trouble -plagued companies***'" "***have long skimped on security in favor of convenience***," in the context of how they described the voting machine systems that three large vendors – Election Systems & Software, Dominion Voting Systems, & Hart InterCivic – collectively provide voting machines & software that facilitate voting for over 90% of all eligible voters in the U.S." (See attached hereto as Exh. 26, copy of Senator Warren, Klobuchar, Wyden's December 6, 2019 letter).

k. Senator Ron Wyden (D-Oregon) said the findings [insecurity of voting systems] are "yet another damning indictment of the profiteering election vendors, who care more about the bottom line than protecting our democracy." It's also an indictment, he said, "of the notion that important cybersecurity decisions should be left entirely to county

[27] Presumably the machiens were not altered following submission of the code. LONDON, ENGLAND / ACCESSWIRE / August 10, 2017, *Voting Technology Companies in the U.S. - Their Histories and Present Contributions*

election offices, many of whom do not employ a single cybersecurity specialist."[28]

111.

An analysis of the Dominion software system by a former US Military Intelligence expert concludes that the system and software have been accessible and were certainly compromised by rogue actors, such as Iran and China. By using servers and employees connected with rogue actors and hostile foreign influences combined with numerous easily discoverable leaked credentials, Dominion neglectfully allowed foreign adversaries to access data and intentionally provided access to their infrastructure in order to monitor and manipulate elections, including the most recent one in 2020. (See Exh. 7).

112.

An expert witness in pending litigation in the United States District Court, Northern District Court of Georgia, Atlanta Div., 17-cv-02989 specifically testified to the acute security vulnerabilities, among other facts, by declaration filed on October 4, 2020, (See Exh. 4B, Document 959-4

[28] *Exclusive: Critical U.S. Election Systems Have Been Left Exposed Online Despite Official Denials, Motherboard Tech by Vice, by Kim Zetter, August 8, 2019, https://www.vice.com/en/article/3kxzk9/exclusive-critical-us-election-systems-have-been-left-exposed-online-despite-official-denials*

attached hereto, paragraph. 18 and 20 of p. 28, Exh. 4, Hursti Declaration). wherein he testified or found:

1) The failure of the Dominion software "*to meet the methods and processes for national standards for managing voting system problems and should not be accepted for use in a public election under any circumstances*."

2) In Hursti's declaration he explained that "There is evidence of remote access and remote troubleshooting which presents a grave security implication and certified identified vulnerabilities should be considered an "extreme security risk." *Id.* Hari Hursti also explained that USB drives with vote tally information were observed to be removed from the presence of poll watchers during a recent election. *Id.* The fact that there are no controls of the USB drives was seen recently seen the lack of physical security and compliance with professional standards, " in one Georgia County, where it is reported that 3,300 votes were found on memory sticks not loaded plus in Floyd county, another 2,600 were unscanned, and the "found votes" reduced Biden's lead over Donald Trump[29].

(a) In the prior case against Dominion, supra, further implicating the secrecy behind the software used in Dominion Systems,

[29] *Recount find thousands of Georgia votes*, Atlanta Journal-Constitution by Mark Niesse and David Wickert,11/19/20. https://www.ajc.com/politics/recount-finds-thousands-of-georgia-votes-missing-from-initial-counts/ERDRNXPH3REQTM4SOINPSEP72M/

Dr. Eric Coomer, a Vice President of Dominion Voting Systems, testified that even he was not sure of what testing solutions were available to test problems or how that was done, " *I have got to be honest, we might be a little bit out of my bounds of understanding the rules and regulations*… and in response to a question on testing for voting systems problems in relation to issues identified in 2 counties, he explained that "*Your Honor, I'm not sure of the complete test plan*… *Again Pro V&V themselves determine what test plan in necessary based on their analysis of the code itself*." (*Id*. at Document 959-4, pages 53, 62 L.25- p. 63 L3).

113.

Hursti stated within said Declaration:

> "The security risks outlined above – operating system risks, the failure to harden the computers, performing operations directly on the operating systems, lax control of memory cards, lack of procedures, and potential remote access are extreme and destroy the credibility of the tabulations and output of the reports coming from a voting system."

(See Paragraph 49 of Hursti Declaration).

114.

Rather than engaging in an open and transparent process to give credibility to Georgia's brand-new voting system, the election processes were

hidden during the receipt, review, opening, and tabulation of those votes in direct contravention of Georgia's Election Code and federal law.

115.

The House of Representatives passed H.R. 2722 in an attempt to address these very risks identified by Hursti, on June 27, 2019:

> *This bill addresses election security through grant programs and requirements for voting systems and paper ballots.*
>
> *The bill establishes requirements for voting systems, including that systems (1) use individual, durable, voter-verified paper ballots; (2) make a voter's marked ballot available for inspection and verification by the voter before the vote is cast; (3) ensure that individuals with disabilities are given an equivalent opportunity to vote, including with privacy and independence, in a manner that produces a voter-verified paper ballot; (4) be manufactured in the United States; and (5) meet specified cybersecurity requirements, including the prohibition of the connection of a voting system to the internet.*

ADDITIONAL SPECIFIC FRAUD

116.

On November 4, 2020, the Georgia GOP Chairman issued the following statement:

> *"Let me repeat. Fulton County elections officials told the media and our observers that they were shutting down the tabulation center at State Farm Arena at 10:30 p.m. on election night to continue counting ballots in secret until 1:00 a.m.* [30]

117.

It was widely reported that "As of 7 p.m. on Wednesday Fulton County Elections officials said 30,000 absentee ballots were not processed due to a pipe burst."[31] Officials reassured voters that none of the ballots were damaged and the water was quickly cleaned up. But the emergency delayed officials from processing ballots between 5:30 a.m. and 9:30 a.m. Officials say they continued to count beginning at 8:30 a.m. Wednesday. The statement from Fulton County continues:

> "Tonight, Fulton County will report results for approximately 86,000 absentee ballots, as well as Election Day and Early Voting results. These represent the vast majority of ballots cast within Fulton County.
>
> "As planned, Fulton County will continue to tabulate the remainder of absentee ballots over the next two days. Absentee ballot processing requires that each ballot is opened, signatures verified, and ballots scanned. This is a labor-intensive process that takes longer to tabulate than other forms of voting. Fulton County did not anticipate having all absentee ballots processed on Election Day." Officials said they will work to ensure every vote is counted and all laws and regulations are followed.[32]

[31] "4,000 remaining absentee ballots being counted in Fulton County", Fox 5 Atlanta, November 3, 2020, https://www.fox5atlanta.com/news/pipe-burst-at-state-farm-arena-delays-absentee-ballot-processing

[32] 4,000 remaining absentee ballots being counted in Fulton County, Fox 5 Atlanta, November 3, 2020, https://www.fox5atlanta.com/news/pipe-burst-at-state-farm-arena-delays-absentee-ballot-processing

118.

Plaintiffs have learned that the representation about "a water leak affecting the room where absentee ballots were counted" was not true. The only water leak that needed repairs at State Farm Arena from November 3 – November 5 was a toilet overflow that occurred earlier on November 3. It had nothing to do with a room with ballot counting, but the false water break representation led to "everyone being sent home." Nonetheless, first six (6) people, then three (3) people stayed until 1:05 a.m. working on the computers.

119.

An Affiant recounts how she was present at State Farm Arena on November 3, and saw election workers remaining behind after people were told to leave. (See Exh. 28, Affidavit of Mitchell Harrison; Exh. 29, Affid. of Michelle Branton)

120.

Plaintiffs have also learned through several reports that in 2010 Eric Coomer joined Dominion as Vice President of U.S. Engineering. According to his bio, Coomer graduated from the University of California, Berkeley with a Ph.D. in Nuclear Physics. Eric Coomer was later promoted to Voting Systems Officer of Strategy and Security although Coomer has since been removed from the Dominion page of directors. Dominion altered its website after

Colorado resident Joe Oltmann disclosed that as a reporter he infiltrated ANTIFA, a domestic terrorist organization where he recorded Eric Coomer representing: "Don't worry. Trump won't win the election, we fixed that." – as well as social media posts with violence threatened against President Trump. (See Joe Oltmann interview with Michelle Malkin dated November 13, 2020 which contains copies of Eric Coomer's recording and tweets).[33]

121.

While the bedrock of American elections has been transparency, almost every crucial aspect of Georgia's November 3, 2020, General Election was shrouded in secrecy, rife with "errors," and permeated with anomalies so egregious as to render the results incapable of certification.

MULTIPLE EXPERT REPORTS AND STATISTICAL ANALYSES PROVE HUNDREDS OF THOUSANDS OF VOTES WERE LOST OR SHIFTED THAT COST PRESIDENT TRUMP AND THE REPUBLICAN CANDIDATES OF CONGRESSIONAL DISTRICTS 6 AND 7 THEIR RACES.

122.

As evidenced by numerous public reports, expert reports, and witness statements, Defendants egregious misconduct has included ignoring legislative mandates concerning mail-in and ordinary ballots and led to

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33 Malkin Live: Election Update, Interview of Joe Oltmann, by Michelle Malkin, November 13, 2020, *available at:* https://www.youtube.com/watch?v=dh1X4s9HuLo&fbclid=IwAR2EaJc1M9RT3DaUraAjsycM0uPKB3uM_-MhH6SMeGrwNyJ3vNmlcTsHxF4

disenfranchisement of an enormous number of Georgia voters. Plaintiffs experts can show that, consistent with the above specific misrepresentations, analysis of voting data reveals the following:

(a) Regarding uncounted mail ballots, based on evidence gathered by Matt Braynard in the form of recorded calls and declarations of voters, and analyzed by Plaintiff's expert, Williams M. Briggs, PhD, shows, based on a statistically significant sample, **that the total number of mail ballots that voters mailed in, but were never counted, have a 95% likelihood of falling between 31,559 and 38,886 total lost votes.** This range exceeds the margin of loss of President Trump of 12,670 votes by at least 18,889 lost votes and by as many as 26,196 lost votes. (See Exh. 1, Dr. Briggs' Report, with attachments).

(b) Plaintiff's expert also finds that **voters received tens of thousands of ballots that they never requested.** (See Exh. 1). Specifically, Dr. Briggs found that in the state of Georgia, based on a statistically significant sample, the expected amount of persons that received an absentee ballot that they did not request ranges from 16,938 to 22,771. **This range exceeds the margin of loss of**

President Trump by 12,670 votes by at least 4,268 unlawful requests and by as many as 10,101 unlawful requests. *Id.*

(c) This widespread pattern, as reflected within the population of unreturned ballots analyzed by Dr. Briggs, reveals the unavoidable reality that, in addition to the calculations herein, third parties voted an untold number of unlawfully acquired absentee or mail-in ballots, which would not be in the database of unreturned ballots analyzed here. See O.G.C.A. 21-2-522. **These unlawfully voted ballots prohibited properly registered persons from voting and reveal a pattern of widespread fraud down ballot as well.**

(d) **Further, as calculated by Matt Braynard, there exists clear evidence of 20,311 absentee or early voters in Georgia that voted while registered as having moved out of state.** (See Id., attachment to report). Specifically, these persons were showing on the National Change of Address Database (NCOA) as having moved, or as having filed subsequent voter registration in another state also as evidence that they moved and even potentially voted in another state. The 20,311 votes by persons documented as having moved exceeds the margin by which Donald Trump lost the election by 7,641 votes.

(e) Applying *pro-rata* the above calculations separately to Cobb County based on the number of unreturned ballots, a range of 1,255 and 1,687 ballots ordered by 3rd parties and a range of 2,338 and 2,897 lost mail ballots, plus 10,684 voters documented in the NCOA as having moved, **for a combined minimum of 14,276 missing and unlawful ballots, and maximum of 15,250 missing and unlawful ballots, which exceeds the statewide Presidential race total margin by a range of as few as 1,606 ballots and as many as 2,580 in the County of Cobb alone impacting the Cobb County Republican Party ("Cobb County Republicans").**

123.

As seen from the **expert analysis of Eric Quinnell**, mathematical anomalies further support these findings, when in various districts within Fulton County such as vote gains that exceed reasonable expectations when compared to 2016, and a failure of gains to be normally distributed but instead shifting substantially toward the tail of the distribution in what is known as a platykurtic distribution. Dr. Quinell identifies numerous anomalies such as votes to Biden in excess of 2016 exceed the registrations that are in excess of 2016. Ultimately, he identifies the counties in order of their excess performance over what would have fit in a

normal distribution of voting gains, revealing a list of the most anomalous counties down to the least. These various anomalies provide evidence of voting irregularities. (See Exh.27, Declaration of Eric Quinnell, with attachments).

124.

In sum, with the expert analysis of William M. Briggs PhD based on recorded calls and declarations, the extent of missing AND unlawfully requested ballots create substantial evidence that the mail ballot system has fundamentally failed to provide a fair voting mechanism. In short, tens of thousands of votes did not count while the pattern of fraud makes clear that tens of thousands were improperly counted. This margin of victory in the election for Mr. Biden was only 12,670 and cannot withstand most of these criticisms individually and certainly not in aggregate.

125.

Cobb county, based on lost votes, unlawfully requested votes and NCOA data on these facts alone would consume more than the entire margin of the statewide difference in the Presidential race. These election results must be reversed.

126.

Applying *pro-rata* the above calculations separately to Cobb County based on the number of unreturned ballots, a range of 1,255 and 1,687 ballots

ordered by 3rd parties and a range of 2,338 and 2,897 lost mail ballots, plus 10,684 voters documented in the NCOA as having moved, **for a combined minimum of 14,276 missing and unlawful ballots, and maximum of 15,250 missing and unlawful ballots, which exceeds the statewide Presidential race total margin by a range of as few as 1,606 ballots and as many as 2,580 in the County of Cobb alone impacting the Cobb County Republican Party ("Cobb County Republicans").** (See Exh. 1).

127.

Mr. Braynard also found a pattern in Georgia of voters registered at totally fraudulent residence addresses, including shopping centers, mail drop stores and other non-residential facilities[34].

128.

In sum, with the expert analysis of William M. Briggs PhD based on extensive investigation, recorded calls and declarations collected by Matt Braynard, (See attachments to Exh. 1, Briggs' report) the extent of missing and unlawfully requested ballots create substantial evidence that the mail ballot system has fundamentally failed to provide a fair voting mechanism. In

[34] Matt Braynard, https://twitter.com/MattBraynard/status/1331324173910761476; https://twitter.com/MattBraynard/status/1331299873556086787?s=20; (a) https://twitter.com/MattBraynard/status/1331299873556086787?s=20

short, tens of thousands of votes did not count while the pattern of fraud and mathematical anomalies that are impossible absent malign human agency makes clear that tens of thousands were improperly counted. This margin of victory in the election for Mr. Biden was only 12,670 and cannot withstand most of these criticisms individually and certainly not in aggregate.

129.

Cobb county, based on lost votes, unlawfully requested votes and NCOA data on these facts alone would consume more than the entire margin of the statewide difference in the Presidential race.

130.

Russell Ramsland confirms that data breaches in the Dominion software permitted rogue actors to penetrate and manipulate the software during the recent general election. He further concludes that at least 96,600 mail-in ballots were illegally counted as they were not cast by legal voters.

131.

In sum, as set forth above, for a host of independent reasons, the Georgia certified election results concluding that Joe Biden received 12,670 more votes that President Donald Trump must be set aside.

COUNT I

DEFENDANTS VIOLATED THE ELECTIONS CLAUSE AND 42 U.S.C. § 1983

132.

Plaintiffs reallege all preceding paragraphs as if fully set forth herein.

133.

The Electors Clause states that "[e]ach State shall appoint, in such Manner as the Legislature thereof may direct, a Number of Electors" for President. Art. II, § 1, cl. 2 (emphasis added). Likewise, the Elections Clause of the U.S. Constitution states that "[t]he Times, Places, and Manner of holding Elections for Senators and Representatives, shall be prescribed in each State by the Legislature thereof." Art. I, § 4, cl. 1 (emphasis added).

134.

The Legislature is "'the representative body which ma[kes] the laws of the people.'" *Smiley*, 285 U.S. at 193. Regulations of congressional and presidential elections, thus, "must be in accordance with the method which the state has prescribed for legislative enactments." *Id.* at 367; *see also Ariz. State Legislature v. Ariz. Indep. Redistricting Comm'n*, 135 S. Ct. 2652, 2668 (2015).

135.

Defendants are not part of the General Assembly and cannot exercise legislative power. Rather, Defendants' power is limited to "tak[ing] care that the laws be faithfully executed." Pa. Const. Art. IV, § 2. Because the United States Constitution reserves for the General Assembly the power to set the time, place, and manner of holding elections for the President and Congress, county boards of elections and state executive officers have no authority to unilaterally exercise that power, much less to hold them in ways that conflict with existing legislation.

136.

Defendants are not the legislature, and their unilateral decision to create a "cure procedure" violates the Electors and Elections Clauses of the United States Constitution.

137.

The Secretary of State and the State Election Board are not the legislature, and their decision to permit early processing of absentee ballots in direct violation of the unambiguous requirements of O.C.G.A. § 21-2-386(a)(2) violates the Electors and Elections Clauses of the United States Constitution.

138.

Many Affiants testified to many legal infractions in the voting process, including specifically switching absentee ballots or mail-in ballots for Trump to Biden. Even a Democrat testified in his sworn affidavit that before he was forced to move back to where he could not see, he had in fact seen, "*I also saw absentee ballots for Trump inserted into Biden's stack, and counted as Biden votes. This occurred a few times*". (See Exh. 18, Par. 12).

139.

Plaintiff's expert also finds that voters received tens of thousands of ballots that they never requested. (See Exh. 1, Dr. Briggs' Report). Specifically, Dr. Briggs found that in the state of Georgia, based on a statistically significant sample, the expected amount of persons that received an absentee ballot that they did not request one ranges from 16,938 to 22,771. This range exceeds the margin of loss of President Trump by 12,670 votes by at least 4,268 unlawful requests and by as many as 10,101 unlawful requests.

140.

This widespread pattern, as reflected within the population of unreturned ballots analyzed by Dr. Briggs, reveals the unavoidable reality that, in addition to the calculations herein, third parties voted an untold number of unlawfully acquired absentee or mail-in ballots, which would not

be in the database of unreturned ballots analyzed here. *See* O.G.C.A. 21-2-522. These unlawfully voted ballots prohibited properly registered persons from voting and reveal a pattern of widespread fraud.

141.

Further, as shown by data collected by Matt Braynard, there exists clear evidence of 20,311 absentee or early voters in Georgia that voted while registered as having moved out of state. Specifically, these persons were showing on the National Change of Address Database (NCOA) as having moved, or as having filed subsequent voter registration in another state also as evidence that they moved and even potentially voted in another state. The 20,311 votes by persons documented as having moved exceeds the margin by which Donald Trump lost the election by 7,641 votes.

142.

Plaintiffs have no adequate remedy at law and will suffer serious and irreparable harm unless the injunctive relief requested herein is granted. Defendants have acted and, unless enjoined, will act under color of state law to violate the Elections Clauses of the Constitution. Accordingly, the results for President and Congress in the November 3, 2020 election must be set aside. The results are infected with Constitutional violations.

COUNT II

THE SECRETARY OF STATE AND GEORGIA COUNTIES VIOLATED THE FOURTEENTH AMENDMENT U.S. CONST. AMEND. XIV, 42 U.S.C. § 1983

DENIAL OF EQUAL PROTECTION

INVALID ENACTMENT OF REGULATIONS AFFECTING OBSERVATION AND MONITORING OF THE ELECTION

143.

Plaintiffs refer to and incorporate by reference each of the prior paragraphs of this Complaint as though the same were repeated at length herein.

144.

The Fourteenth Amendment of the United States Constitution provides "nor shall any state deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws. *See also Bush v. Gore*, 531 U.S. 98, 104 (2000)(having once granted the right to vote on equal terms, the State may not, by later arbitrary and disparate treatment, value one person's vote over the value of another's). *Harper v. Virginia Board of Elections*, 383 U.S. 663, 665 (1966) ("Once the franchise is granted to the electorate, lines may not be drawn which are inconsistent with the Equal Protection Clause of the Fourteenth Amendment.").

145.

The Court has held that to ensure equal protection, a "problem inheres in the absence of specific standards to ensure its equal application. The formulation of uniform rules to determine intent based on these recurring circumstances is practicable and, we conclude, necessary." *Bush v. Gore*, 531 U.S. 98, 106, 121 S. Ct. 525, 530, 148 L. Ed. 2d 388 (2000).

146.

The equal enforcement of election laws is necessary to preserve our most basic and fundamental rights. The requirement of equal protection is particularly stringently enforced as to laws that affect the exercise of fundamental rights, including the right to vote.

147.

In statewide and federal elections conducted in the State of Georgia, including without limitation the November 3, 2020, General Election, all candidates, political parties, and voters, including without limitation Plaintiffs, have a vested interest in being present and having meaningful access to observe and monitor the electoral process in each County to ensure that it is properly administered in every election district and otherwise free, fair, and transparent.

148.

Moreover, through its provisions involving watchers and representatives, the Georgia Election Code ensures that all candidates and political parties in each County, including the Trump Campaign, have meaningful access to observe and monitor the electoral process to ensure that it is properly administered in every election district and otherwise free, fair, and transparent. *See, e.g.* In plain terms, the statute clearly prohibits opening absentee ballots prior to election day, while the rule authorizes doing so three weeks before election day. There is no reconciling this conflict. The State Election Board has authority under O.C.G.A. § 21-2-31 to adopt lawful and legal rules and regulations, but no authority to promulgate a regulation that is directly contrary to an unambiguous statute. Rule 183-1-14-0.9-.15 is therefore plainly and indisputably unlawful.

Plaintiffs also bring this action under Georgia law, O.C.G.A. § 21-2-522, Grounds for Contest:

149.

A result of a primary or election may be contested on one or more of the following grounds:

150.

(1) Misconduct, fraud, or irregularity by any primary or election official or officials sufficient to change or place in doubt the result;

(2) When the defendant is ineligible for the nomination or office in dispute;

(3) When illegal votes have been received or legal votes rejected at the polls sufficient to change or place in doubt the result;

(4) For any error in counting the votes or declaring the result of the primary or election, if such error would change the result; or

(5) For any other cause which shows that another was the person legally nominated, elected, or eligible to compete in a run-off primary or election. O.C.G.A. § 21-2-522.

151.

Several affiants testified to the improper procedures with absentee ballots processing, with the lack of auditable procedures with the logs in the computer systems, which violates Georgia law, and federal election law. See

also, 50 U.S.C. § 20701 requires the retention and preservation of records and papers by officers of elections under penalty of fine and imprisonment.

152.

The State Election Board re-adopted Rule 183-1-14-0.9-.15 on November 23, 2020 for the upcoming January 2021 runoff election.

153.

A large number of ballots were identical and likely fraudulent. An Affiant explains that she observed a batch of utterly pristine ballots:

> 14. Most of the ballots had already been handled; they had been written on by people, and the edges were worn. They showed obvious use. However, one batch stood out. It was pristine. There was a difference in the texture of the paper - it was if they were intended for absentee use but had not been used for that purposes. There was a difference in the feel.
>
> 15. These different ballots included a slight depressed pre-fold so they could be easily folded and unfolded for use in the scanning machines. There were no markings on the ballots to show where they had com~ from, or where they had been processed. These stood out.
>
> 16. In my 20 years of experience of handling ballots, I observed that the markings for the candidates on these ballots were unusually uniform, perhaps even with a ballot-marking device. By my estimate in observing these ballots, approximately 98% constituted votes for Joe Biden. I only observed two of these ballots as votes for President Donald J. Trump." (See Exh. 15).

154.

The same Affiant further testified specifically to the breach of the chain of custody of the voting machines the night before the election stating:

> we typically receive the machines, the ballot marking devices – on the Friday before the election, with a chain of custody letter to be signed on Sunday, indicating that we had received the machines and the counts on the machines when received, and that the machines have been sealed. **In this case, we were asked to sign the chain of custody letter on Sunday, even though the machines were not delivered until 2:00 AM in the morning on Election Day.** The Milton precinct received its machines at 1:00 AM in the morning on Election Day. This is unacceptable and voting machines should [not] be out of custody prior to an Election Day. *Id*.

155.

Defendants have a duty to treat the voting citizens in each County in the same manner as the citizens in other counties in Georgia.

156.

As set forth in Count I above, Defendants failed to comply with the requirements of the Georgia Election Code and thereby diluted the lawful ballots of the Plaintiffs and of other Georgia voters and electors in violation of the United States Constitution guarantee of Equal Protection.

157.

Specifically, Defendants denied the plaintiffs equal protection of the law and their equal rights to meaningful access to observe and monitor the electoral process enjoyed by citizens in other Georgia Counties by:

(a) mandating that representatives at the pre-canvass and canvass of all absentee and mail-ballots be either Georgia barred

attorneys or qualified registered electors of the county in which they sought to observe and monitor;

(b) not allowing watchers and representatives to visibly see and review all envelopes containing official absentee and mail-in ballots either at or before they were opened and/or when such ballots were counted and recorded; and

(c) allowing the use of Dominion Democracy Suite software and devices, which failed to meet the Dominion Certification Report's conditions for certification.

158.

Instead, Defendants refused to credential all of the Trump Republican's submitted watchers and representatives and/or kept Trump Campaign's watchers and representatives by security and metal barricades from the areas where the inspection, opening, and counting of absentee and mail-in ballots were taking place. Consequently, Defendants created a system whereby it was physically impossible for the candidates and political parties to view the ballots and verify that illegally cast ballots were not opened and counted

159.

Many Affiants testified to switching absentee ballots or mail-in ballots for Trump to Biden, including a Democrat. He testified in his sworn affidavit, that before he was forced to move back to where he could not see, he

had in fact seen, "absentee ballots for Trump inserted into Biden's stack, and counted as Biden votes. This occurred a few times". (See Exh. 18, Par. 12).

160.

Other Georgia county boards of elections provided watchers and representatives of candidates and political parties, including without limitation watchers and representatives of the Republicans and the Trump Campaign, with appropriate access to view the absentee and mail-in ballots being pre-canvassed and canvassed by those county election boards and without restricting representatives by any county residency or Georgia bar licensure requirements.

161.

Defendants intentionally and/or arbitrarily and capriciously denied Plaintiffs access to and/or obstructed actual observation and monitoring of the absentee and mail-in ballots being pre-canvassed and canvassed by Defendants, depriving them of the equal protection of those state laws enjoyed by citizens in other Counties.

162.

Defendants have acted and will continue to act under color of state law to violate Plaintiffs' right to be present and have actual observation and access to the electoral process as secured by the Equal Protection Clause of the United States Constitution.

163.

Defendants further violated Georgia voters' rights to equal protection insofar as Defendants allowed the Georgia counties to process and count ballots in a manner that allowed ineligible ballots to be counted, and through the use of Dominion Democracy Suite, allowed eligible ballots for Trump and McCormick to be switched to Biden or lost altogether. Defendants thus failed to conduct the general election in a uniform manner as required by the Equal Protection Clause of the Fourteenth Amendment and the Georgia Election Code.

164.

Plaintiffs seek declaratory and injunctive relief holding that the election, under these circumstances, was improperly certified and that the Governor be enjoined from transmitting Georgia's certified Presidential election results to the Electoral College. Georgia law forbids certifying a tally that includes any ballots that were not legally cast, or that were switched from Trump to Biden, through the unlawful use of Dominion Democracy Suite software and devices.

165.

Alternatively, Plaintiffs seek declaratory and injunctive relief holding that the election, under these circumstances, was improperly certified and that the Governor be required to recertify the results declaring that Donald

Trump has won the election and transmitting Georgia's certified Presidential election result in favor of President Trump.

166.

Plaintiffs have no adequate remedy at law and will suffer serious and irreparable harm unless the declaratory and injunctive relief requested herein is granted. Indeed, the setting aside of an election in which the people have chosen their representative is a drastic remedy that should not be undertaken lightly, but instead should be reserved for cases in which a person challenging an election has clearly established a violation of election procedures and has demonstrated that the violation has placed the result of the election in doubt. Georgia law allows elections to be contested through litigation, both as a check on the integrity of the election process and as a means of ensuring the fundamental right of citizens to vote and to have their votes counted accurately. O.C.G.A. § 21-2-520 et seq.

167.

In addition to the alternative requests for relief in the preceding paragraphs, hereby restated, Plaintiffs seek a permanent injunction requiring the County Election Boards to invalidate ballots cast by: 1) voters whose signatures on their registrations have not been matched with ballot, envelope and voter registration check; 2) all "dead votes"; and 4) all 900 military ballots in Fulton county that supposedly were 100% for Joe Biden.

COUNT III

FOURTEENTH AMENDMENT EQUAL PROTECTION CLAUSE U.S. CONST. AMEND. XIV, 42 U.S.C. § 1983

DENIAL OF DUE PROCESS

DISPARATE TREATMENT OF ABSENTEE/MAIL-IN VOTERS AMONG DIFFERENT COUNTIES

168.

Plaintiffs incorporate each of the prior allegations in this Complaint.

Voting is a fundamental right protected by the Fourteenth Amendment to the United States Constitution. The Fourteenth Amendment protects the right to vote from conduct by state officials which seriously undermines the fundamental fairness of the electoral process. *Marks v. Stinson*, 19 F.3d 873, 889 (3d Cir. 1994); *Griffin*, 570 F.2d at 1077-78. "[H]aving once granted the right to vote on equal terms, the State may not, by later arbitrary and disparate treatment, value one person's vote over that of another." *Bush*, 531 U.S. at 104-05.

169.

Defendants are not part of the General Assembly and cannot exercise legislative power. Rather, Defendants' power is limited to executing the laws as passed by the legislature Although the Georgia General Assembly may enact laws governing the conduct of elections, "no legislative enactment may

contravene the requirements of the Georgia or United States Constitutions." *Shankey*, 257 A. 2d at 898.

170.

Federal courts "possess broad discretion to fashion an equitable remedy." *Black Warrior Riverkeeper, Inc. v. U.S. Army Corps of Engineers*, 781 F.3d 1271, 1290 (11th Cir. 2015); *Castle v. Sangamo Weston, Inc.*, 837 F.2d 1550, 1563 (11th Cir. 1988) ("The decision whether to grant equitable relief, and, if granted, what form it shall take, lies in the discretion of the district court.").

171.

Moreover, "[t]o the extent that a voter is at risk for having his or her ballot rejected due to minor errors made in contravention of those requirements, … the decision to provide a 'notice and opportunity to cure' procedure to alleviate that risk is one best suited for the Legislature[,] . . . particularly in light of the open policy questions attendant to that decision, including what the precise contours of the procedure would be, how the concomitant burdens would be addressed, and how the procedure would impact the confidentiality and counting of ballots, all of which are best left to the legislative branch of Georgia's government." *Id.*

172.

The disparate treatment of Georgia voters, in subjecting one class of voters to greater burdens or scrutiny than another, violates Equal Protection guarantees because "the right of suffrage can be denied by a debasement or dilution of the weight of a citizen's vote just as effectively as by wholly prohibiting the free exercise of the franchise." *Reynolds*, 377 U.S. at 555. *Rice v. McAlister*, 268 Ore. 125, 128, 519 P.2d 1263, 1265 (1975); *Heitman v. Brown Grp., Inc.*, 638 S.W.2d 316, 319, 1982 Mo. App. LEXIS 3159, at *4 (Mo. Ct. App. 1982); *Prince v. Bear River Mut. Ins. Co.*, 2002 UT 68, ¶ 41, 56 P.3d 524, 536-37 (Utah 2002).

173.

Defendants are not the legislature, and their unilateral decision to create and implement a cure procedure for some but not all absentee and mail-in voters in this State violates the Due Process Clause of the United States Constitution. Plaintiffs have no adequate remedy at law and will suffer serious and irreparable harm unless the injunctive relief requested herein is granted.

COUNT IV

FOURTEENTH AMENDMENT, U.S. CONST. ART. I § 4, CL. 1; ART. II, § 1, CL. 2; AMEND. XIV, 42 U.S.C. § 1983

DENIAL OF DUE PROCESS ON THE RIGHT TO VOTE

174.

Plaintiffs refer to and incorporate by reference each of the prior paragraphs of this Complaint as though the same were repeated at length herein.

175.

The right of qualified citizens to vote in a state election involving federal candidates is recognized as a fundamental right under the Fourteenth Amendment of the United States Constitution. *Harper*, 383 U.S. at See also *Reynolds*, 377 U.S. at 554 (The Fourteenth Amendment protects the "the right of all qualified citizens to vote, in state as well as in federal elections."). Indeed, ever since the Slaughter-House Cases, 83 U.S. 36 (1873), the United States Supreme Court has held that the Privileges or Immunities Clause of the Fourteenth Amendment protects certain rights of federal citizenship from state interference, including the right of citizens to directly elect members of Congress. *See Twining v. New Jersey*, 211 U.S. 78, 97 (1908) (*citing Ex parte Yarbrough*, 110 U.S. 651, 663-64 (1884)). *See also Oregon v. Mitchell,* 400 U.S. 112, 148-49 (1970) (Douglas, J., concurring) (collecting cases).

176.

The fundamental right to vote protected by the Fourteenth Amendment is cherished in our nation because it "is preservative of other basic civil and political rights." *Reynolds*, 377 U.S. at 562. Voters have a "right to cast a ballot in an election free from the taint of intimidation and fraud," Burson v. Freeman, 504 U.S. 191, 211 (1992), and "[c]onfidence in the integrity of our electoral processes is essential to the functioning of our participatory democracy." *Purcell v. Gonzalez*, 549 U.S. 1, 4 (2006) (per curiam).

177.

"Obviously included within the right to [vote], secured by the Constitution, is the right of qualified voters within a state to cast their ballots and have them counted" if they are validly cast. *United States v. Classic*, 313 U.S. 299, 315 (1941). "[T]he right to have the vote counted" means counted "at full value without dilution or discount." *Reynolds*, 377 U.S. at 555, n.29 (quoting *South v. Peters,* 339 U.S. 276, 279 (1950) (Douglas, J., dissenting)).

178.

"Every voter in a federal . . . election, whether he votes for a candidate with little chance of winning or for one with little chance of losing, has a right under the Constitution to have his vote fairly counted, without its being distorted by fraudulently cast votes." *Anderson v. United States*, 417 U.S. 211, 227 (1974); see also *Baker v. Carr*, 369 U.S. 186, 208 (1962). Invalid or

fraudulent votes "debase[]" and "dilute" the weight of each validly cast vote. *See Anderson*, 417 U.S. at 227.

179.

The right to an honest [count] is a right possessed by each voting elector, and to the extent that the importance of his vote is nullified, wholly or in part, he has been injured in the free exercise of a right or privilege secured to him by the laws and Constitution of the United States." *Anderson*, 417 U.S. at 226 (quoting *Prichard v. United States*, 181 F.2d 326, 331 (6th Cir.), *aff'd due to absence of quorum*, 339 U.S. 974 (1950)).

180.

Practices that promote the casting of illegal or unreliable ballots or fail to contain basic minimum guarantees against such conduct, can violate the Fourteenth Amendment by leading to the dilution of validly cast ballots. *See Reynolds*, 377 U.S. at 555 ("[T]he right of suffrage can be denied by a debasement or dilution of the weight of a citizen's vote just as effectively as by wholly prohibiting the free exercise of the franchise.").

181.

In Georgia, the signature verification requirement is a dead letter. The signature rejection rate for the most recent election announced by the Secretary of State was 0.15%. The signature rejection rate for absentee ballot applications was .00167% - only 30 statewide. Hancock County, Georgia,

population 8,348, rejected nine absentee ballot applications for signature mismatch. Fulton County rejected eight. No other metropolitan county in Georgia rejected even a single absentee ballot application for signature mismatch. The state of Colorado, which has run voting by mail for a number of years, has a signature rejection rate of between .52% and .66%.[35] The State of Oregon had a rejection rate of 0.86% in 2016.[36] The State of Washington has a rejection rate of between 1% and 2%.[37]If Georgia rejected absentee ballots at a rate of .52% instead of the actual .15%, approximately 4,600 more absentee ballots would have been rejected.

COUNT V

THERE WAS WIDE-SPREAD BALLOT FRAUD.

OCGA 21-2-522

182.

Plaintiffs refer to and incorporate by reference each of the prior paragraphs of this Complaint as though the same were repeated at length herein.

[35] *See* https://duckduckgo.com/?q=colorado+signature+rejection+rate&t=osx&ia=web last visited November 25,2020

[36] *See* https://www.vox.com/21401321/oregon-vote-by-mail-2020-presidential-election, last visited November 25,2020.

[37] *See* https://www.salon.com/2020/09/08/more-than-550000-mail-ballots-rejected-so-far-heres-how-to-make-sure-your-vote-gets-counted/ last visited November 25, 2020.

183.

Plaintiffs contest the results of Georgia's election, with Standing conferred under pursuant to O.G.C.A. 21-2-521.

184.

Therefore, pursuant to O.G.C.A. 21-2-522, for misconduct, fraud, or irregularity by any primary or election official or officials sufficient to change or place in doubt the result. The foundational principle that Georgia law "nonetheless allows elections to be contested through litigation, both as a check on the integrity of the election process and as a means of ensuring the fundamental right of citizens to vote and to have their votes counted accurately." *Martin v. Fulton County Bd. of Registration & Elections*, 307 Ga. 193, 194, 835 S.E.2d 245, 248 (2019). The Georgia Supreme Court has made clear that Plaintiffs need not show how the [] voters would have voted if their [absentee] ballots had been regular. [] only had to show that there were enough irregular ballots to place in doubt the result." See OCGA § 21-2-520 et seq., *Mead v. Sheffield*, 278 Ga. 268, 272, 601 S.E.2d 99, 102 (1994) the Supreme Court invalidated an election, and ordered a new election because it found that,

> Thus, [i]t was not incumbent upon [the Plaintiff] to show how the [481] voters would have voted if their [absentee] ballots had been regular. He only had to show that there were enough irregular ballots to place in doubt the result. He succeeded in that task.

Id. at 271 (citing *Howell v. Fears*, 275 Ga. 627, 571 SE2d 392, (2002) (primary results invalid where ballot in one precinct omitted names of both qualified candidates).

185.

The "glitches" in the Dominion system—that seem to have the uniform effect of hurting Trump and helping Biden have been widely reported in the press and confirmed by the analysis of independent experts.

186.

Prima facie evidence in multiple affidavits shows specific fraudulent acts, which directly resulted in the flipping of the race at issue:

a) votes being switched in Biden's favor away from Trump during the recount;
b) the lack of procedures in place to follow the election code, and the purchase and use, Dominion Voting System despite evidence of serious vulnerabilities;
c) a demonstration that misrepresentations were made about a pipe burst that sent everyone home, while first six, then three, unknown individuals were left alone until the morning hours working on the machines;

d) further a failure to demonstrate compliance with the Georgia's Election Codes, in maintaining logs on the Voting system for a genuine and sound audit, other than voluntary editable logs that prevent genuine audits. While the bedrock of this Democratic Republic rests on citizens' confidence in the validity of our elections and a transparent process, Georgia's November 3, 2020 General Election remains under a pall of corruption and irregularity that reflects a pattern of the absence of mistake. At best, the evidence so far shows ignorance of the truth; at worst, it proves a knowing intent to defraud.

187.

Plaintiff's expert also finds that voters received tens of thousands of ballots that they never requested. (See Exh. 1, Dr. Briggs' Report). Specifically, Dr. Briggs found that in the state of Georgia, based on a statistically significant sample, the expected amount of persons that received an **absentee ballot that they did not request ranges from 16,938 to 22,771.** This range exceeds the margin of loss of President Trump by 12,670 votes by at least 4,268 unlawful requests and by as many as 10,101 unlawful requests.

188.

This widespread pattern, as reflected within the population of unreturned ballots analyzed by Dr. Briggs, reveals the unavoidable reality that, in addition to the calculations herein, third parties voted an untold number of unlawfully acquired absentee or mail-in ballots, which would not be in the database of unreturned ballots analyzed here. See O.G.C.A. 21-2-522. These unlawfully voted ballots prohibited properly registered persons from voting and reveal a pattern of widespread fraud.

189.

Further, there exists clear evidence of 20,311 absentee or early voters in Georgia that voted while registered as having moved out of state. Specifically, these persons were showing on the National Change of Address Database (NCOA) as having moved, or as having filed subsequent voter registration in another state also as evidence that they moved and even potentially voted in another state. The 20,311 votes by persons documented as having moved exceeds the margin by which Donald Trump lost the election by 7,641 votes.

190.

Plaintiffs" expert Russell Ramsland concludes that at least 96,600 mail-in ballots were fraudulently cast. He further concludes that up to

136,098 ballots were illegally counted as a result of improper manipulation of the Dominion software. (Ramsland Aff).

191.

The very existence of absentee mail in ballots created a heightened opportunity for fraud. The population of unreturned ballots analyzed by William Briggs, PhD, reveals the probability that a far greater number of mail ballots were requested by 3rd parties or sent erroneously to persons and voted fraudulently, undetected by a failed system of signature verification. The recipients may have voted in the name of another person, may have not had the legal right to vote and voted anyway, or may have not received the ballot at the proper address and then found that they were unable to vote at the polls, except provisionally, due to a ballot outstanding in their name.

192.

When we consider the harm of these uncounted votes, and ballots not ordered by the voters themselves, and the potential that many of these unordered ballots may in fact have been improperly voted and also prevented proper voting at the polls, the mail ballot system has clearly failed in the state of Georgia and did so on a large scale and widespread basis. The size of the voting failures, whether accidental or intentional, are multiples larger than the margin of votes between the presidential candidates in the

state. For these reasons, Georgia cannot reasonably rely on the results of the mail vote.

193.

The right to vote includes not just the right to cast a ballot, but also the right to have it fairly counted if it is legally cast. The right to vote is infringed if a vote is cancelled or diluted by a fraudulent or illegal vote, including without limitation when a single person votes multiple times. The Supreme Court of the United States has made this clear in case after case. See, e.g., *Gray v. Sanders*, 372 U.S. 368, 380 (1963) (every vote must be "protected from the diluting effect of illegal ballots."); *Crawford v. Marion Cnty. Election Bd.*, 553 U.S. 181, 196 (2008) (plurality op. of Stevens, J.) ("There is no question about the legitimacy or importance of the State's interest in counting only the votes of eligible voters."); *accord Reynolds v. Sims*, 377 U.S. 533, 554-55 & n.29 (1964).

194.

Plaintiffs have no adequate remedy at law. As seen from the expert analysis of William Higgs, PhD, based on actual voter data, tens of thousands of votes did not count, and tens of thousands of votes were unlawfully requested.

195.

The Fourteenth Amendment Due Process Clause protects the right to vote from conduct by state officials which seriously undermines the fundamental fairness of the electoral process. *Marks v. Stinson*, 19 F.3d 873, 889 (3d Cir. 1994); *Griffin v. Burns*, 570 F.2d 1065, 1077-78 (1st Cir. 1978).

196.

Separate from the Equal Protection Clause, the Fourteenth Amendment's due process clause protects the fundamental right to vote against "the disenfranchisement of a state electorate." *Duncan v. Poythress*, 657 F.2d 691, 702 (5th Cir. 1981). "When an election process 'reaches the point of patent and fundamental unfairness,' there is a due process violation." *Florida State Conference of N.A.A.C.P. v. Browning*, 522 F.3d 1153, 1183-84 (11th Cir. 2008) (*quoting Roe v. Alabama*, 43 F.3d 574, 580 (11th Cir.1995) (*citing Curry v. Baker*, 802 F.2d 1302, 1315 (11th Cir.1986))). *See also Griffin*, 570 F.2d at 1077 ("If the election process itself reaches the point of patent and fundamental unfairness, a violation of the due process clause may be indicated and relief under § 1983 therefore in order."); *Marks v. Stinson*, 19 F.3d 873, 889 (3d Cir. 1994) (enjoining winning state senate candidate from exercising official authority where absentee ballots were obtained and cast illegally).

197.

Part of courts' justification for such a ruling is the Supreme Court's recognition that the right to vote and to free and fair elections is one that is preservative of other basic civil and political rights. *See Black*, 209 F.Supp.2d at 900 (quoting *Reynolds*, 377 U.S. at 561-62 ("since the right to exercise the franchise in a free and unimpaired manner is preservative of other basic civil and political rights, any alleged infringement of the right of citizens to vote must be carefully and meticulously scrutinized.")); see also *Yick Wo v. Hopkins*, 118 U.S. 356, 370 (1886) ("the political franchise of voting … is regarded as a fundamental political right, because [sic] preservative of all rights.").

198.

"[T]he right to vote, the right to have one's vote counted, and the right to have ones vote given equal weight are basic and fundamental constitutional rights incorporated in the due process clause of the Fourteenth Amendment to the Constitution of the United States." Black, 209 F. Supp. 2d at 900 (a state law that allows local election officials to impose different voting schemes upon some portions of the electorate and not others violates due process). "Just as the equal protection clause of the Fourteenth Amendment prohibits state officials from improperly diluting the right to vote, the due process clause of the Fourteenth amendment forbids state

officials from unlawfully eliminating that fundamental right." *Duncan*, 657 F.2d at 704. "Having once granted the right to vote on equal terms, [Defendants] may not, by later arbitrary and disparate treatment, value one person's vote over that of another." *Bush*, 531 U.S. at 104-05.

199.

In statewide and federal elections conducted in the State of Georgia, including without limitation the November 3, 2020 General Election, all candidates, political parties, and voters, including without limitation Plaintiffs, have a vested interest in being present and having meaningful access to observe and monitor the electoral process to ensure that it is properly administered in every election district and otherwise free, fair, and transparent.

200.

Moreover, through its provisions involving watchers and representatives, the Georgia Election Code ensures that all candidates and political parties, including without limitation Plaintiff, Republicans, and the Trump Campaign, shall be "present" and have meaningful access to observe and monitor the electoral process to ensure that it is properly administered in every election district and otherwise free, fair, and transparent.

201.

Defendants have a duty to guard against deprivation of the right to vote through the dilution of validly cast ballots by ballot fraud or election tampering. Rather than heeding these mandates and duties, Defendants arbitrarily and capriciously denied the Trump Campaign and Republicans meaningful access to observe and monitor the electoral process by: (a) mandating that representatives at the pre- canvass and canvass of all absentee and mail-ballots be either Georgia barred attorneys or qualified registered electors of the county in which they sought to observe and monitor; and (b) not allowing watchers and representatives to visibly see and review all envelopes containing official absentee and mail-in ballots either at the time or before they were opened and/or when such ballots were counted and recorded. Instead, Defendants refused to credential all of the Trump Campaign's submitted watchers and representatives and/or kept Trump Campaign's watchers and representatives by security and metal barricades from the areas where the inspection, opening, and counting of absentee and mail-in ballots were taking place. The lack of meaningful access with actual access to see the ballots invited further fraud and cast doubt of the validity of the proceedings.

202.

Consequently, Defendants created a system whereby it was physically impossible for the candidates and political parties to view the ballots and verify that illegally cast ballots were not opened and counted.

203.

Defendants intentionally and/or arbitrarily and capriciously denied Plaintiffs access to and/or obstructed actual observation and monitoring of the absentee and mail-in ballots being pre-canvassed and canvassed by Defendants, and included the unlawfully not counting and including uncounted mail ballots, and that they failed to follow absentee ballot requirements when thousands of **voters received ballots that they never requested.** Defendants have acted and will continue to act under color of state law to violate the right to vote and due process as secured by the Fourteenth Amendment to the United States Constitution.

204.

Plaintiffs have no adequate remedy at law and will suffer serious and irreparable harm unless the injunctive relief requested herein is granted.

205.

When we consider the harm of these uncounted votes, and ballots not ordered by the voters themselves, and the potential that many of these

unordered ballots may in fact have been improperly voted and also prevented proper voting at the polls, the mail ballot system has clearly failed in the state of Georgia and did so on a large scale and widespread basis. The size of the voting failures, whether accidental or intentional, are multiples larger than the margin in the state. For these reasons, Georgia cannot reasonably rely on the results of the mail vote.

206.

Relief sought is the elimination of the mail ballots from counting in the 2020 election. Alternatively, the Presidential electors for the state of Georgia should be disqualified from counting toward the 2020 election.

207.

The United States Code (3 U.S.C. 5) provides that,

> "[i]f any State shall have provided, by laws enacted prior to the day fixed for the appointment of the electors, for its final determination of any controversy or contest concerning the appointment of all or any of the electors of such State, by judicial or other methods or procedures, and such determination shall have been made at least six days before the time fixed for the meeting of the electors, such determination made pursuant to such law so existing on said day, and made at least six days prior to said time of meeting of the electors, shall be conclusive, and shall govern in the counting of the electoral votes as provided in the Constitution, and as hereinafter regulated, so far as the ascertainment of the electors appointed by such State is concerned.

3 USCS § 5.

REQUEST FOR RELIEF

208.

Accordingly, Plaintiffs seek an emergency order instructing Defendants to de-certify the results of the General Election for the Office of President.

209.

In the alternative, Plaintiffs seek an emergency order prohibiting Defendants from including in any certified results from the General Election the tabulation of absentee and mailing ballots which do not comply with the Election Code, including, without limitation, the tabulation of absentee and mail-in ballots Trump Campaign's watchers were prevented from observing or based on the tabulation of invalidly cast absentee and mail-in ballots which (i) lack a secrecy envelope, or contain on that envelope any text, mark, or symbol which reveals the elector's identity, political affiliation, or candidate preference, (ii) do not include on the outside envelope a completed declaration that is dated and signed by the elector, or (iii) are delivered in-person by third parties for non-disabled voters.

210.

When we consider the harm of these uncounted votes, and ballots not ordered by the voters themselves, and the potential that many of these unordered ballots may in fact have been improperly voted and also prevented

proper voting at the polls, the mail ballot system has clearly failed in the state of Georgia and did so on a large scale and widespread basis. The size of the voting failures, whether accidental or intentional, are multiples larger than the margin in the state. For these reasons, Georgia cannot reasonably rely on the results of the mail vote. Relief sought is the elimination of the mail ballots from counting in the 2020 election. Alternatively, the electors for the state of Georgia should be disqualified from counting toward the 2020 election. Alternatively, the electors of the State of Georgia should be directed to vote for President Donald Trump.

211.

For these reasons, Plaintiff asks this Court to enter a judgment in their favor and provide the following emergency relief:

1. An order directing Governor Kemp, Secretary Raffensperger and the Georgia State Board of Elections to de-certify the election results;

2. An order enjoining Governor Kemp from transmitting the currently certified election results to the Electoral College;

3. An order requiring Governor Kemp to transmit certified election results that state that President Donald Trump is the winner of the election;

4. An immediate order to impound all the voting machines and software in Georgia for expert inspection by the Plaintiffs.

5. An order that no votes received or tabulated by machines that were not certified as required by federal and state law be counted.

6. A declaratory judgment declaring that Georgia Secretary of State Rule 183-1-14-0.9-.15 violates the Electors and Elections Clause, U.S. CONST. art. I, § 4;

7. A declaratory judgment declaring that Georgia's failed system of signature verification violates the Electors and Elections Clause by working a de facto abolition of the signature verification requirement;

8. A declaratory judgment declaring that current certified election results violates the Due Process Clause, U.S. CONST. Amend. XIV;

9. A declaratory judgment declaring that mail-in and absentee ballot fraud must be remedied with a Full Manual Recount or statistically valid sampling that properly verifies the signatures on absentee ballot envelopes and that invalidates the certified results if the recount or sampling analysis shows a sufficient number of ineligible absentee ballots were counted;

10. An emergency declaratory judgment that voting machines be Seized and Impounded immediately for a forensic audit—by plaintiffs' expects;

11. A declaratory judgment declaring absentee ballot fraud occurred in violation of Constitutional rights, Election laws and under state law;

12. A permanent injunction prohibiting the Governor and Secretary of State from transmitting the currently certified results to the Electoral College based on the overwhelming evidence of election tampering;

13. Immediate production of 36 hours of security camera recording of all rooms used in the voting process at State Farm Arena in Fulton County, GA from 12:00am to 3:00am until 6:00pm on November 3.

14. Plaintiffs further request the Court grant such other relief as is just and proper, including but not limited to, the costs of this action and their reasonable attorney fees and expenses pursuant to 42 U.S.C. 1988.

Respectfully submitted, this 25th day of November, 2020.

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Exh. 1

An Analysis of Surveys Regarding Absentee Ballots Across Several States

William M. Briggs

November 23, 2020

1 Summary

Survey data was collected from individuals in several states, sampling those who the states listed as not returning absentee ballots. The data was provided by Matt Braynard.

The survey asked respondents whether they (a) had ever requested an absentee ballot, and, if so, (b) whether they had in fact returned this ballot. From this sample I produce predictions of the total numbers of: **Error #1**, those who were recorded as receiving absentee ballots *without* requesting them; and **Error #2**, those who returned absentee ballots but whose votes went missing (i.e. marked as unreturned).

The sizes of both errors were large in each state. The states were Georgia, Michigan, Wisconsin, and Arizona where ballots were across parties. Pennsylvania data was for Republicans only.

2 Analysis Description

Each analysis was carried out separately for each state. The analysis used (a) the number of absentee ballots recorded as unreturned, (b) the total responding to the survey, (c) the total of those saying they did not request a ballot, (d) the total of those saying they did request a ballot, and of these (e) the number saying they returned their ballots. I assume survery respondents are representative and the data is accurate.

From these data a simple parameter-free predictive model was used to calculate the probability of all possible outcomes. Pictures of these probabilities were derived, and the 95% prediction interval of the relevant numbers was calculated. The pictures appear in the Appendix at the end. They are summarized here with their 95% prediction intervals.

Error #1: being recorded as sent an absentee ballot without requesting one.

Error #2: sending back an absentee ballot and having it recorded as not returned.

State	Unreturned ballots	Error #1	Error #2
Georgia	138,029	16,938–22,771	31,559–38,866
Michigan	139,190	29,611–36,529	27,928–34,710
Pennsylvania*	165,412	32,414–37,444	26,954–31,643
Wisconsin	96,771	16,316–19,273	13,991–16,757
Arizona	518,560	208,333–229,937	78,714–94,975

*Number for Pennsylvania represent Republican ballots only.

Ballots that were not requested, and ballots returned and marked as not returned were classed as *troublesome*. The estimated average number of troublesome ballots for each state were then calculated using the table above and are presented next.

State	Unreturned ballots	Estimated average troublesome ballots	Percent
Georgia	138,029	53,489	39%
Michigan	139,190	62,517	45%
Pennsylvania*	165,412	61,780	37%
Wisconsin	96,771	29,594	31%
Arizona	518,560	303,305	58%

*Number for Pennsylvania represent Republican ballots only.

3 Conclusion

There are clearly a large number of troublesome ballots in each state investigated. Ballots marked as not returned that were never requested are clearly an error of some kind. The error is not small as a percent of the total recorded unreturned ballots.

Ballots sent back and unrecorded is a separate error. These represent votes that have gone missing, a serious mistake. The number of these missing ballots is also large in each state.

Survey respondents were not asked if they received an unrequested ballot whether they sent these ballots back. This is clearly a lively possibility, and represents a third possible source of error, including the potential of voting twice (once by absentee and once at the polls). No estimates or likelihood can be calculated for this potential error due to absence of data.

4 Declaration of William M. Briggs, PhD

1. My name is William M. Briggs. I am over 18 years of age and am competent to testify in this action. All of the facts stated herein are true and based on my personal knowledge.
2. I received a Ph.D of Statistics from Cornell University in 2004.
3. I am currently a statistical consultant. I make this declaration in my personal capacity.
4. I have analyzed data regarding responses to questions relating to mail ballot requests, returns and related issues.
5. I attest to a reasonable degree of professional certainty that the resulting analysis are accurate.

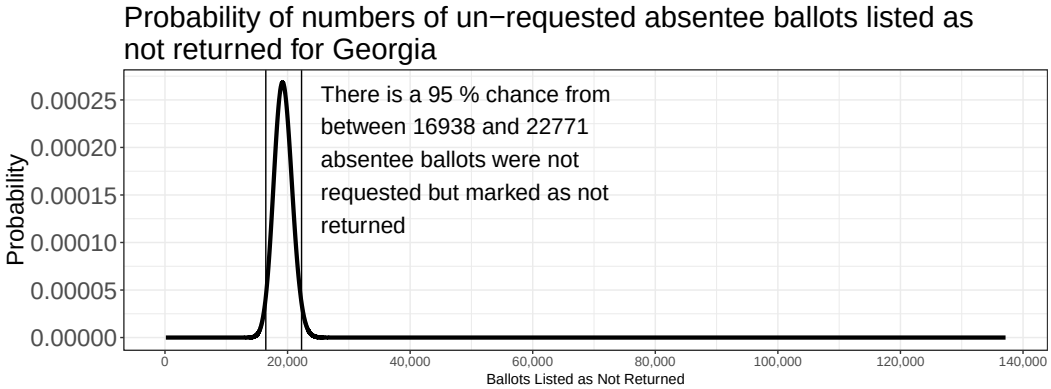
I declare under the penalty of perjury that the foregoing is true and correct.

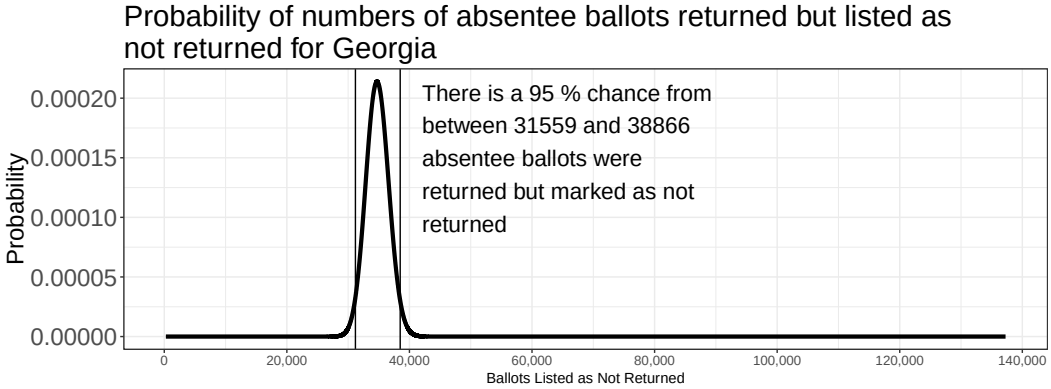
23 November 2020

William M. Briggs

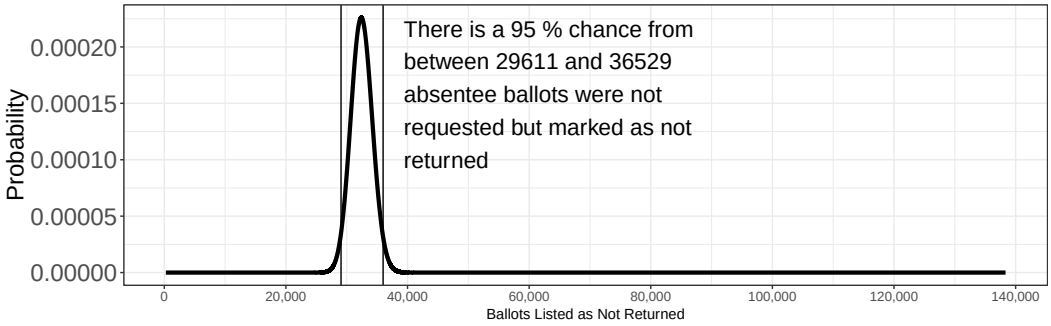
5 Appendix

The probability pictures for each state for each outcome as mentioned above.

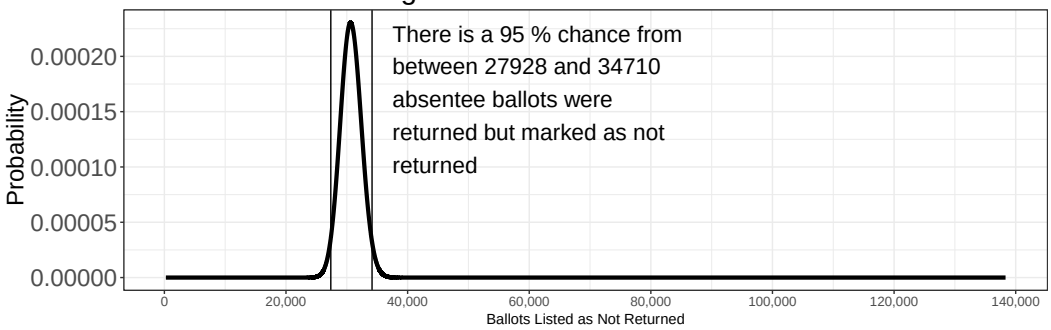




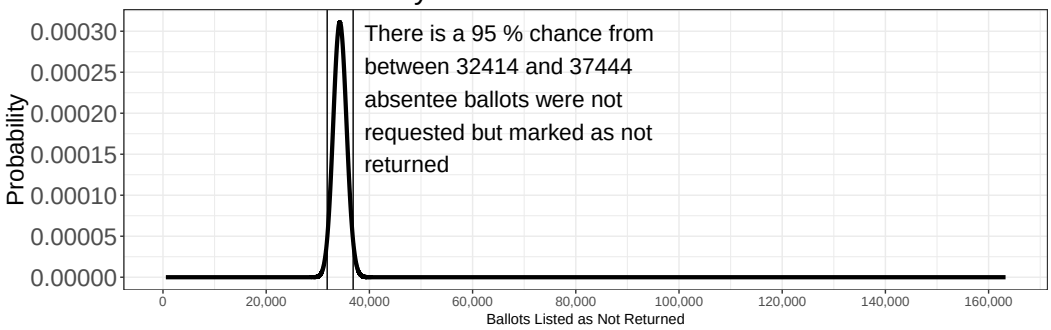
Probability of numbers of un−requested absentee ballots listed as not returned for Michigan



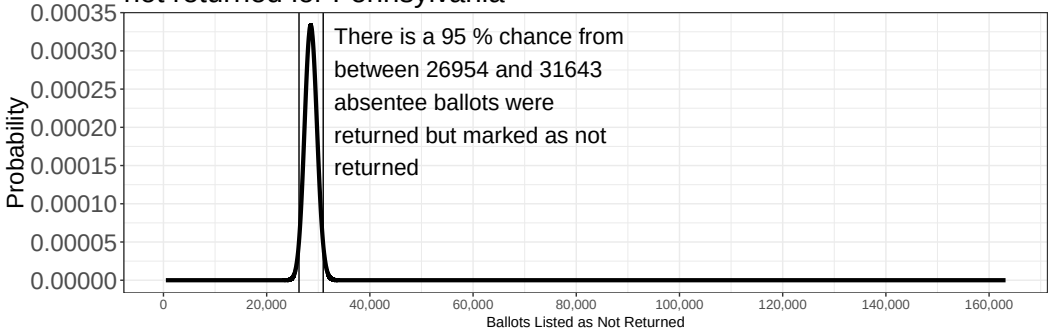
Probability of numbers of absentee ballots returned but listed as not returned for Michigan



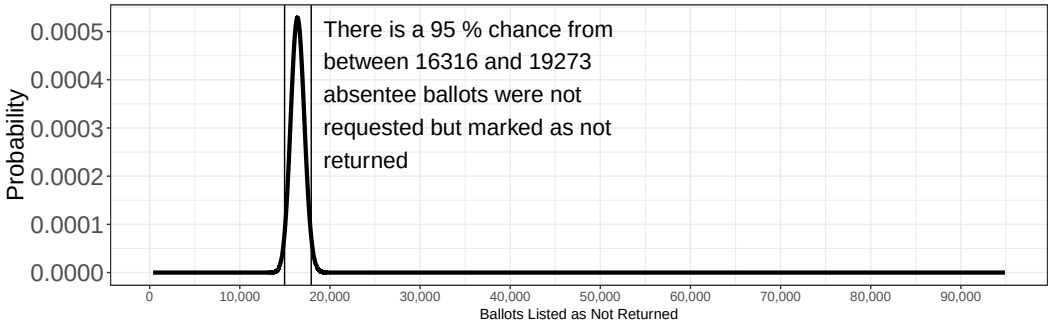
Probability of numbers of un−requested absentee ballots listed as not returned for Pennsylvania



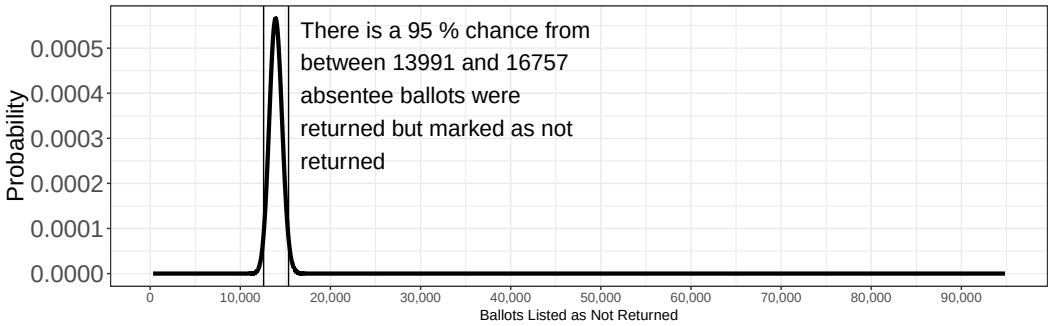
Probability of numbers of absentee ballots returned but listed as not returned for Pennsylvania



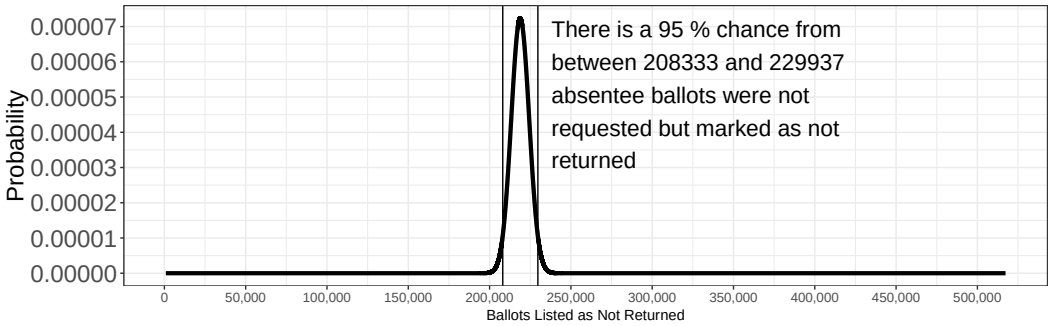
Probability of numbers of un−requested absentee ballots listed as not returned for Wisconsin



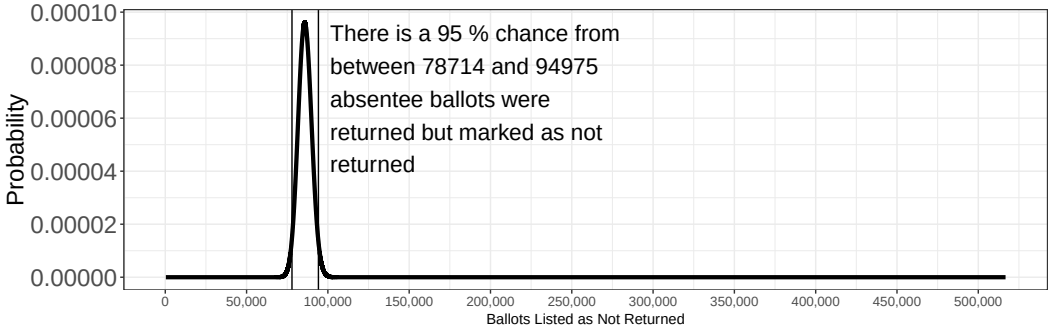
Probability of numbers of absentee ballots returned but listed as not returned for Wisconsin



Probability of numbers of un−requested absentee ballots listed as not returned for Arizona



Probability of numbers of absentee ballots returned but listed as not returned for Arizona



0276 GA Unreturned_Absentee Live ID Topline

			11/16/2020	11/17/2020
15179	**Completes**		**8143**	**7036**
184	**Q5=01 or 02**	status = C	64	120
13,479	**Answering Machines**	status = AM	7090	6389
1,516	**up/RC**	status = R, IR, RC, DC	989	527
4,902	**Numbers/Language**	status = D, BC,WN, NE	2436	2466
0	**MA**	status = MA	0	0
58.45%	**List Penetration**			
34,355	**Data Loads**		34,355	

Q1 - May I please speak to <lead on screen>?		**Response**	**16-Nov**	**17-Nov**
767	65.28%	1. Reached Target [Go to Q2].	446	321
255	21.70%	[Go to Q2].	165	90
153	13.02%	X = Refused <Go to CLOSE A>	104	49
385	32.77%	Q = Hangup <Go to CLOSE A>	267	118
1,175	**100.00%**	**Sum of All Responses**	**982**	**578**

Q2 - Did you request an absentee ballot?		**Response**	**16-Nov**	**17-Nov**
591	61.31%	1. Yes. [Go to Go to Q3].	343	248
128	13.28%	2. No. [Go to Q4].	84	44

39	4.05%	member confirmed “Yes” [Go to	24	15
14	1.45%	member confirmed “No” [Go to Q4]	11	3
40	4.15%	5. Unsure. [Go to Q3].	26	14
82	8.51%	moment. [Go to Close A]	48	34
70	7.26%	X = Refused <Go to CLOSE A>	42	28
58	6.02%	Q = Hangup <Go to CLOSE A>	33	25
964	**100.00%**	**Sum of All Responses**	**611**	**411**

Q3 - Did you mail back that ballot?		**Response**	**16-Nov**	**17-Nov**
240	38.52%	1. Yes. [Go to Go to Q4].	149	91
317	50.88%	2. No. [Go to Close A].	174	143
17	2.73%	member confirmed “Yes” [Go to	10	7
9	1.44%	member confirmed “No” [Go to Close A]	4	5
24	3.85%	5. Unsure. [Go to Close A].	14	10
11	1.77%	moment. [Go to Close A]	8	3
5	0.80%	X = Refused <Go to CLOSE A>	5	0
7	1.12%	Q = Hangup <Go to CLOSE A>	3	4
623	**100.00%**	**Sum of All Responses**	**367**	**263**

Q4 - Can you please give us the best phone number to reach you at?		**Response**	**16-Nov**	**17-Nov**
313	82.15%	01 = Yes <Go to Q5>	205	108
49	12.86%	02 = No <Go to Q5>	26	23
19	4.99%	X = Refused <Go to CLOSE A>	13	6
18	4.72%	Q = Hangup <Go to CLOSE A>	10	8

381	**100.00%**	**Sum of All Responses**	**254**	**145**

Q5 - May we please have an email address to follow-up as well?		**Response**	**16-Nov**	**17-Nov**
99	28.86%	01 = Yes <Go to CLOSE B>	64	35
229	66.76%	02 = No <Go to CLOSE B>	144	85
15	4.37%	X = Refused <Go to CLOSE A>	11	4
19	5.54%	Q = Hangup <Go to CLOSE A>	12	7
343	**100.00%**	**Sum of All Responses**	**231**	**131**

MI Unreturned Live Agent - Mass Markets

			11/15/2020	11/16/2020	11/17/2020	
3,815	**Completes**		**-**	**990**	**2,825**	
248	**Q4=01**	1-Completed Survey	-	36	212	
1,257	**VM Message Left**	2-Message Delivered VM	-	388	869	
2,310	**up/RC**	3-Refused	-	566	1,744	
62,569	**No Answer**	4-No Answer	-	15,482	47,087	
3,644	**Numbers/Language**	5-Bad Number	-	570	3,074	
100.00%	**List Penetration**					
70,030	**Data Loads**					

Q1 - May I please speak to <lead on screen>?		**Response**	**11/15/2020**	**11/16/2020**	**11/17/2020**
958	23.65%	A-Reached Target	-	158	800
142	3.51%	Uncertain	-	57	85
2,950	72.84%	X = Refused	-	883	2,067
0	0.00%				
4,050	**100.00%**	**Sum of All Responses**	**-**	**1,098**	**2,952**

Q2 - Did you request Absentee Ballot in state of MI?		**Response**	**11/15/2020**	**11/16/2020**	**11/17/2020**
752	49.64%	A-Yes [Go to Q3]	-	167	585

239	15.78%	B-No [Go to Q4]	-	39	200
50	3.30%	Member) [Go to Q3]	-	5	45
17	1.12%	Member) [Go to Q4]	-	2	15
37	2.44%	E-Unsure [Go to Close A]	-	4	33
11	0.73%	Moment [Go to Close A]	-	2	9
409	27.00%	X = Refused	-	63	346
1,515	**100.00%**	**Sum of All Responses**	**-**	**282**	**1,233**

Q3 - Did you mail your ballot back?		**Response**	**11/15/2020**	**11/16/2020**	**11/17/2020**
232	21.28%	A-Yes [Go to Q4]	-	41	191
472	43.30%	B-No [Go to Close A]	-	109	363
10	0.92%	Member) [Go to Q4]	-	2	8
28	2.57%	Member) [Go to Close A]	-	2	26
22	2.02%	Close A]	-	5	17
326	29.91%	X = Refused	-	60	266
			-		
1,090	**100.00%**	**Sum of All Responses**	**-**	**219**	**871**

Q4 - Can you please give us the best phone number to reach you at?		**Response**	**11/15/2020**	**11/16/2020**	**11/17/2020**
246	69.89%	A-Yes (Capture Number) [Go to Q5]	-	36	210
106	30.11%	B-Refused [Go to Q5]	-	27	79

0	0.00%				
0	0.00%				
352	**100.00%**	**Sum of All Responses**	**-**	**63**	**289**

Q5 - Can you provide us your email address?		**Response**	**11/15/2020**	**11/16/2020**	**11/17/2020**
18	7.26%	01-Yes [Go to Close B]	-	5	13
230	92.74%	02-No [Go to Close B]	-	31	199
0	0.00%				
248	**100.00%**	**Sum of All Responses**	**-**	**36**	**212**

WI Unreturned Live Agent - Mass Markets

			11/15/2020	11/16/2020	11/17/2020
4,614	**Completes**		**-**	**3,483**	**1,131**
433	**Completed survey** - Q4=0**	1-Completed Survey	-	300	133
1,053	**VM Message Left**	2-Message Delivered VM	-	804	249
3,128	**Refused/Early Hang up/RC**	3-Refused	-	2,379	749
50,712	**No Answer**	4-No Answer	-	40,391	10,321
1,944	**Bad/Wrong Numbers/Langu**	5-Bad Number	-	1,289	655
100.00%	**List Penetration**				
57,271	**Data Loads**				

Q1 - May I please speak to <lead on screen>?		**Response**	11/15/2020	11/16/2020	11/17/2020
2,261	64.69%	A-Reached Target + B-What Is This About? / Uncertain	-	1,343	475
1,677	47.98%	X = Refused	-	1,202	475
0	0.00%				
3,495	**100.00%**	**Sum of All Responses**	**-**	**2,545**	**950**

Q2 - Did you request Absentee Ballot in state of WI?		**Response**	11/15/2020	11/16/2020	11/17/2020
1,699	62.39%	A-Yes [Go to Q3]	-	1,374	325

379	13.92%	B-No [Go to Q4]	-	240	139
32	1.18%	C-Yes (per Spouse/family Member) [Go to Q3]	-	16	16
4	0.15%	D-No (per Spouse/family Member) [Go to Q4]	-	-	4
44	1.62%	E-Unsure [Go to Close A]	-	25	19
4	0.15%	F-Not Available At The Moment [Go to Close A]	-	2	2
561	20.60%	X = Refused	-	405	156
2,723	**100.00%**	**Sum of All Responses**	**-**	**2,062**	**661**

Q3 - Did you mail your ballot back?		**Response**	**11/15/2020**	**11/16/2020**	**11/17/2020**
316	14.67%	A-Yes [Go to Q4]	-	238	78
1,286	59.70%	B-No [Go to Close A]	-	1,069	217
9	0.42%	C-Yes (per Spouse/family Member) [Go to Q4]	-	4	5
15	0.70%	D-No (per Spouse/family Member) [Go to Close A]	-	8	7
28	1.30%	E-Unsure / Refused [Go to Close A]	-	24	4
500	23.21%	X = Refused	-	314	186
			-		
2,154	**100.00%**	**Sum of All Responses**	**-**	**1,657**	**497**

Q4 - Can you please give us the best phone number to reach you at?		Response	11/15/2020	11/16/2020	11/17/2020
432	80.00%	A-Yes (Capture Number) [Go to Q5]	-	300	132
108	20.00%	B-Refused [Go to Q5]	-	77	31
0	0.00%				
0	0.00%				
540	**100.00%**	**Sum of All Responses**	**-**	**377**	**163**

Q5 - Can you provide us your email address?		Response	11/15/2020	11/16/2020	11/17/2020
50	11.55%	01-Yes [Go to Close B]	-	37	13
383	88.45%	02-No [Go to Close B]	-	263	120
0	0.00%				
433	**100.00%**	**Sum of All Responses**	**-**	**300**	**133**

0270 PA Absentee Live ID Topline

			11/9/2020	11/10/2020	11/11/2020
18037	**Completes**		**4419**	**13618**	**0**
834	**survey** - Q4=01**	status = C	178	656	
14,203	**Machines**	status = AM	3465	10738	
3,000	**Hang up/RC**	status = R, IR, RC, DC	776	2224	
3,521	**Numbers/Languag**	status = D, BC,WN, NE	556	2965	
0	**MA**	status = MA			
87.70%	**List Penetration**				
24,581	**Data Loads**		24,581		

Q1 - May I please speak to <lead on screen>?		**Response**	**9-Nov**	**10-Nov**	**11-Nov**
2,262	75.86%	1. Reached Target [Go to Q2].	593	1,669	
422	14.15%	Q2].	102	320	
298	9.99%	X = Refused <Go to CLOSE A>	77	221	
739	24.78%	Q = Hangup <Go to CLOSE A>	160	579	
2,982	**100.00%**	**Sum of All Responses**	**932**	**2789**	**0**

Q2 - Did you request an absentee ballot?		**Response**	**9-Nov**	**10-Nov**	**11-Nov**
1,114	43.91%	1. Yes. [Go to Go to Q3].	331	783	
531	20.93%	2. No. [Go to Q4].	131	400	

36	1.42%	confirmed “Yes” [Go to Q3]	12	24	
25	0.99%	confirmed “No” [Go to Q4]	9	16	
91	3.59%	5. Unsure. [Go to Q3].	25	66	
89	3.51%	moment. [Go to Close A]	17	72	
544	21.44%	A]	105	439	
107	4.22%	X = Refused <Go to CLOSE A>	29	78	
147	5.79%	Q = Hangup <Go to CLOSE A>	36	111	
2,537	**100.00%**	**Sum of All Responses**	**695**	**1989**	**0**

Q3 - Did you mail back that ballot?		**Response**	**9-Nov**	**10-Nov**	**11-Nov**
452	39.75%	1. Yes. [Go to Go to Q4].	90	362	
632	55.58%	2. No. [Go to Close A].	229	403	
11	0.97%	confirmed “Yes” [Go to Q4]	1	10	
11	0.97%	confirmed “No” [Go to Close A]	4	7	
15	1.32%	5. Unsure. [Go to Close A].	6	9	
2	0.18%	moment. [Go to Close A]	0	2	
14	1.23%	X = Refused <Go to CLOSE A>	5	9	
13	1.14%	Q = Hangup <Go to CLOSE A>	8	5	
1,137	**100.00%**	**Sum of All Responses**	**343**	**807**	**0**

Q4 - Can you please give us the best phone number to reach you at?		**Response**	**9-Nov**	**10-Nov**	**11-Nov**
834	87.61%	01 = Yes <Go to CLOSE B>	178	656	
118	12.39%	X = Refused <Go to CLOSE A>	36	82	
67	7.04%	Q = Hangup <Go to CLOSE A>	17	50	
952	**100.00%**	**Sum of All Responses**	**231**	**788**	**0**

AZ Unreturned Live Agent - Mass Markets

			11/15/2020	11/16/2020	11/17/2020	
5,604	**Completes**		**745**	**1,881**	**2,978**	
684	**Q4=01**	1-Completed Survey	116	212	356	
1,945	**VM Message Left**	2-Message Delivered VM	90	657	1,198	
2,975	**up/RC**	3-Refused	539	1,012	1,424	
74,437	**No Answer**	4-No Answer	6,764	25,056	42,617	
1,663	**Numbers/Language**	5-Bad Number	245	384	1,034	
100.00%	**List Penetration**					
81,708	**Data Loads**					

Q1 - May I please speak to <lead on screen>?		**Response**	**11/15/2020**	**11/16/2020**	**11/17/2020**
1,812	40.05%	A-Reached Target	307	554	951
335	7.40%	Uncertain	80	124	131
2,377	52.54%	X = Refused	382	854	1,141
0	0.00%				
4,524	**100.00%**	**Sum of All Responses**	**769**	**1,532**	**2,223**

Q2 - Did you request Absentee Ballot in state of AZ?		**Response**	**11/15/2020**	**11/16/2020**	**11/17/2020**
1,120	45.00%	A-Yes [Go to Q3]	210	361	549

885	35.56%	B-No [Go to Q4]	162	286	437
24	0.96%	Member) [Go to Q3]	5	9	10
21	0.84%	Member) [Go to Q4]	3	10	8
72	2.89%	E-Unsure [Go to Close A]	10	18	44
7	0.28%	[Go to Close A]	-	1	6
360	14.46%	X = Refused	45	69	246
2,489	**100.00%**	**Sum of All Responses**	**435**	**754**	**1,300**

Q3 - Did you mail your ballot		**Response**	**11/15/2020**	**11/16/2020**	**11/17/2020**
344	16.16%	A-Yes [Go to Q4]	67	112	165
696	32.69%	B-No [Go to Close A]	116	237	343
11	0.52%	Member) [Go to Q4]	2	2	7
9	0.42%	Member) [Go to Close A]	1	4	4
14	0.66%	Close A]	3	4	7
1,055	49.55%	X = Refused	201	326	528
2,129	**100.00%**	**Sum of All Responses**	**390**	**685**	**1,054**

Q4 - Can you please give us the best phone number to reach you at?		**Response**	**11/15/2020**	**11/16/2020**	**11/17/2020**
678	82.48%	A-Yes (Capture Number) [Go to Q5]	116	212	350
144	17.52%	B-Refused [Go to Q5]	38	50	56

0	0.00%				
0	0.00%				
822	**100.00%**	**Sum of All Responses**	**154**	**262**	**406**

Q5 - Can you provide us your email address?		**Response**	**11/15/2020**	**11/16/2020**	**11/17/2020**
127	18.57%	01-Yes [Go to Close B]	24	36	67
557	81.43%	02-No [Go to Close B]	92	176	289
0	0.00%				
684	**100.00%**	**Sum of All Responses**	**116**	**212**	**356**

William M. Briggs, PhD
Statistician to the Stars!
matt@wmbriggs.com
917-392-0691

1. Experience

(1) 2016: Author of *Uncertainty: The Soul of Modeling, Probability & Statistics*, a book which argues for a complete and fundamental change in the philosophy and practice of probability and statistics. Eliminate hypothesis testing and estimation, and move to verifiable predictions. This includes AI and machine learning. Call this The Great Reset, but a good one.

(2) 2004-2016 Adjunct Professor of Statistical Science, Cornell University, Ithaca, New York
I taught a yearly Masters course to people who (rightfully) hate statistics. Interests: philosophy of science & probability, epistemology, epidemiology (ask me about the all-too-common epidemiologist fallacy), Bayesian statistics, medicine, climatology & meteorology, goodness of forecasts, overconfidence in science; public understanding of science, limitations of science, scientism; scholastic metaphysics (as it relates to epistemology).

(3) 1998-present. Statistical consultant, Various companies
Most of my time is spent coaxing people out of their money to tell them they are too sure of themselves. All manner of analyses cheerfully undertaken. Example: Fraud analysis; I created the *Wall Street Journal's* College Rankings. I consultant regularly at Methodist and other hospitals, start-ups, start-downs, and with any instition willing to fork it over.

(4) 2003-2010. Research Scientist, New York Methodist Hospital, New York
Besides the usual, I sit/sat on the Institutional Review Committee to assess the statistics of proposed research. I was an Associate Editor for *Monthly Weather Review* (through 2011). Also a member of the American Meteorological Society's Probability and Statistics Committee (through 2011). At a hospital? Yes, sir; at a hospital. It rains there, too, you know.

(5) Fall 2007, Fall 2010 Visiting Professor of Statistics, Department of Mathematics, Central Michigan University, Mt. Pleasant, MI
Who doesn't love a visit from a statistician? Ask me about the difference between "a degree" and "an education."

(6) 2003-2007, Assistant Professor Statistics, Weill Medical College of Cornell University, New York, New York
Working here gave me a sincere appreciation of the influences of government money; grants galore.

(7) 2002-2003. Gotham Risk Management, New York
A start-up then, after Enron's shenanigans, a start-down. We set future weather derivative and weather insurance contract prices that incorporated information from medium- and long-range weather and climate forecasts.

(8) 1998-2002. DoubleClick, New York
Lead statistician. Lot of computer this and thats; enormous datasets.

(9) 1993-1998. Graduate student, Cornell University

Meteorology, applied climatology, and finally statistics. Was Vice Chair of the graduate student government; probably elected thanks to a miracle.

(10) 1992-1993. National Weather Service, Sault Ste. Marie, MI
Forecast storms o' the day and launched enormous balloons in the name of Science. My proudest moment came when I was able to convince an ancient IBM-AT machine to talk to an *analog*, 110 baud, phone-coupled modem, all using BASIC!

(11) 1989-1992. Undergraduate student, Central Michigan University
Meteorology and mathematics. Started the local student meteorology group to chase tornadoes. Who knew Michigan had so few? Spent a summer at U Michigan playing with a (science-fiction-sounding) lidar.

(12) 1983-1989. United States Air Force
Cryptography and other secret stuff. Shot things; learned pinochle. I adopted and became proficient with a fascinating and versatile vocabulary. Irritate me for examples. TS/SCI, etc. security clearance (now inactive).

2. Education

(1) Ph.D., 2004, Cornell University. Statistics.
(2) M.S., 1995, Cornell University. Atmospheric Science.
(3) B.S., Summa Cum Laude, 1992, Central Michigan University. Meteorology and Math.

3. Publications

3.0.1. *Popular.*

(1) Op-eds in various newspapers; articles in *Stream*, *Crisis Magazine*, *The Remnant*, *Quadrant*, *Quirks*; blog with ∼70,000 monthly readers. Various briefs submitted to government agencies, such as California Air Resources Board, Illinois Department of Natural Resources. Talks and holding-forths of all kinds.

3.0.2. *Books.*

(1) Richards, JW, WM Briggs, and D Axe, 2020. *UThe Price of Panic: How the Tyranny of Experts Turned a Pandemic into a Catastrophe*. Regnery. Professors Jay Richards, William Briggs, and Douglas Axe take a deep dive into the crucial questions on the minds of millions of Americans during one of the most jarring and unprecedented global events in a generation.

(2) Briggs, WM., 2016. *Uncertainty: The Soul of Modeling, Probability & Statistics*. Springer. Philosophy of probability and statistics. A new (old) way to view and to use statistics, a way that doesn't lead to heartbreak and pandemic over-certainty, like current methods do.

(3) Briggs, WM., 2008 *Breaking the Law of Averages: Real Life Probability and Statistics in Plain English*. Lulu Press, New York. Free text for undergraduates.

(4) Briggs, WM., 2006 *So You Think You're Psychic?* Lulu Press, New York. Hint: I'll bet you're not.

3.0.3. *Methods.*

(1) Briggs, WM and J.C. Hanekamp, 2020. Uncertainty In The MAN Data Calibration & Trend Estimates. *Atmospheric Environment,* In review.
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Exh. 2

DECLARATION OF [redacted]

I, [redacted], hereby state the following:

1. [redacted]

2. I am an adult of sound mine. All statements in this declaration are based on my personal knowledge and are true and correct.

3. I am making this statement voluntarily and on my own initiative. I have not been promised, nor do I expect to receive, anything in exchange for my testimony and giving this statement. I have no expectation of any profit or reward and understand that there are those who may seek to harm me for what I say in this statement. I have not participated in any political process in the United States, have not supported any candidate for office in the United States, am not legally permitted to vote in the United States, and have never attempted to vote in the United States.

4. I want to alert the public and let the world know the truth about the corruption, manipulation, and lies being committed by a conspiracy of people and companies intent upon betraying the honest people of the United States and their legally constituted institutions and fundamental rights as citizens. This conspiracy began more than a decade ago in Venezuela and has spread to countries all over the world. It is a conspiracy to wrongfully gain and keep power and wealth. It involves political leaders, powerful companies, and other persons whose purpose is to gain and keep power by changing the free will of the people and subverting the proper course of governing.

5. [redacted] Over the course of my career, I specialized in the marines [redacted]

6. Due to my training in special operations and my extensive military and academic formations, I was selected for the national security guard detail of the President of Venezuela. [redacted]

[redacted]

7. [redacted] Señor Cabello was a long-time confederate of President Chavez and instrumental in his gaining power. In 2002, Señor Cabello had very briefly taken over the duties of the presidency while Hugo Chavez was imprisoned. Within hours of Señor Cabello taking over the presidency, Hugo Chavez was released from prison and regained the office of President. On December 11, 2011, Cabello was installed as the Vice-President of the United Socialist Party – the party of President Chávez and became the second most powerful figure in the party after Hugo Chávez. Cabello was appointed president of the National Assembly in early 2012 and was re-elected to that post in January 2013. After Hugo Chávez's death, Cabello was next in line for the presidency of the country, but he remained president of the National Assembly and yielded to Nicolás Maduro holding the position of President of Venezuela.

8. [redacted] President Chavez was very precise and exacting in his instructions in the details about meetings he wanted, where the meeting was to occur, who was to attend, what was to be done. [redacted]

9. [redacted] I was witness to the creation and operation of a

sophisticated electronic voting system that permitted the leaders of the Venezuelan government to manipulate the tabulation of votes for national and local elections and select the winner of those elections in order to gain and maintain their power.

10. Importantly, I was a direct witness to the creation and operation of an electronic voting system in a conspiracy between a company known as Smartmatic and the leaders of conspiracy with the Venezuelan government. This conspiracy specifically involved President Hugo Chavez Frias, the person in charge of the National Electoral Council named Jorge Rodriguez, and principals, representatives, and personnel from Smartmatic which included [redacted]. The purpose of this conspiracy was to create and operate a voting system that could change the votes in elections from votes *against* persons running the Venezuelan government to votes *in their favor* in order to maintain control of the government.

11. In mid-February of 2009, there was a national referendum to change the Constitution of Venezuela to end term limits for elected officials, including the President of Venezuela. The referendum passed. This permitted Hugo Chavez to be re-elected an unlimited number of times.

12. After passage of the referendum, President Chavez instructed me to make arrangements for him to meet with Jorge Rodriguez, then President of the National Electoral Council, and three executives from Smartmatic. Among the three Smartmatic representatives were [redacted] President Chavez had multiple meetings with Rodriguez and the Smartmatic team at which I was present. In the first of four meetings, Jorge Rodriguez promoted the idea to create software that would manipulate elections. Chavez was very excited and made it clear that he would provide whatever Smartmatic needed. He wanted them immediately to create a voting system which would ensure that any time anything was going to be voted on the voting system would guarantee results that Chavez wanted. Chavez offered Smartmatic many inducements, including large sums of money, for Smartmatic to create or modify the voting system so that it would guarantee Chavez would win every election cycle. Smartmatic's team agreed to create such a system and did so.

13. I arranged and attended three more meetings between President Chavez and the representatives from Smartmatic at which details of the new

voting system were discussed and agreed upon. For each of these meetings, I communicated directly with [redacted] on details of where and when to meet, where the participants would be picked up and delivered to the meetings, and what was to be accomplished. At these meetings, the participants called their project the "Chavez revolution." From that point on, Chavez never lost any election. In fact, he was able to ensure wins for himself, his party, Congress persons and mayors from townships.

14. Smartmatic's electoral technology was called "Sistema de Gestión Electoral" (the "Electoral Management System"). Smartmatic was a pioneer in this area of computing systems. Their system provided for transmission of voting data over the internet to a computerized central tabulating center. The voting machines themselves had a digital display, fingerprint recognition feature to identify the voter, and printed out the voter's ballot. The voter's thumbprint was linked to a computerized record of that voter's identity. Smartmatic created and operated the entire system.

15. Chavez was most insistent that Smartmatic design the system in a way that the system could change the vote of each voter without being detected. He wanted the software itself to function in such a manner that if the voter were to place their thumb print or fingerprint on a scanner, then the thumbprint would be tied to a record of the voter's name and identity as having voted, but that voter would not tracked to the changed vote. He made it clear that the system would have to be setup to not leave any evidence of the changed vote for a specific voter and that there would be no evidence to show and nothing to contradict that the name or the fingerprint or thumb print was going with a changed vote. Smartmatic agreed to create such a system and produced the software and hardware that accomplished that result for President Chavez.

16. After the Smartmatic Electoral Management System was put in place, I closely observed several elections where the results were manipulated using Smartmatic software. One such election was in December 2006 when Chavez was running against Rosales. Chavez won with a landslide over Manuel Rosales - a margin of nearly 6 million votes for Chavez versus 3.7 million for Rosales.

17. On April 14, 2013, I witnessed another Venezuelan national election in which the Smartmatic Electoral Management System was used to manipulate and change the results for the person to succeed Hugo Chávez

as President. In that election, Nicolás Maduro ran against Capriles Radonsky. [redacted] Inside that location was a control room in which there were multiple digital display screens – TV screens – for results of voting in each state in Venezuela. The actual voting results were fed into that room and onto the displays over an internet feed, which was connected to a sophisticated computer system created by Smartmatic. People in that room were able to see in "real time" whether the vote that came through the electronic voting system was in their favor or against them. If one looked at any particular screen, they could determine that the vote from any specific area or as a national total was going against either candidate. Persons controlling the vote tabulation computer had the ability to change the reporting of votes by moving votes from one candidate to another by using the Smartmatic software.

18. By two o'clock in the afternoon on that election day Capriles Radonsky was ahead of Nicolás Maduro by two million votes. When Maduro and his supporters realized the size of Radonsky's lead they were worried that they were in a crisis mode and would lose the election. The Smartmatic machines used for voting in each state were connected to the internet and reported their information over the internet to the Caracas control center in real-time. So, the decision was made to reset the entire system. Maduro's and his supporters ordered the network controllers to take the internet itself offline in practically all parts in Venezuela and to change the results.

19. It took the voting system operators approximately two hours to make the adjustments in the vote from Radonsky to Maduro. Then, when they turned the internet back on and the on-line reporting was up and running again, they checked each screen state by state to be certain where they could see that each vote was changed in favor of Nicholas Maduro. At that moment the Smartmatic system changed votes that were for Capriles Radonsky to Maduro. By the time the system operators finish, they had achieved a convincing, but narrow victory of 200,000 votes for Maduro.

20. After Smartmatic created the voting system President Chavez wanted, he exported the software and system all over Latin America. It was sent to Bolivia, Nicaragua, Argentina, Ecuador, and Chile – countries that were in alliance with President Chavez. This was a group of leaders who wanted to be able to guarantee they maintained power in their countries. When Chavez died, Smartmatic was in a position of being the only

company that could guarantee results in Venezuelan elections for the party in power.

21. I want to point out that the software and fundamental design of the electronic electoral system and software of Dominion and other election tabulating companies relies upon software that is a descendant of the Smartmatic Electoral Management System. In short, the Smartmatic software is in the DNA of every vote tabulating company's software and system.

22. Dominion is one of three major companies that tabulates votes in the United States. Dominion uses the same methods and fundamentally same software design for the storage, transfer and computation of voter identification data and voting data. Dominion and Smartmatic did business together. The software, hardware and system have the same fundamental flaws which allow multiple opportunities to corrupt the data and mask the process in a way that the average person cannot detect any fraud or manipulation. The fact that the voting machine displays a voting result that the voter intends and then prints out a paper ballot which reflects that change does not matter. It is the software that counts the digitized vote and reports the results. The software itself is the one that changes the information electronically to the result that the operator of the software and vote counting system intends to produce that counts. That's how it is done. So the software, the software itself configures the vote and voting result -- changing the selection made by the voter. The software decides the result regardless of what the voter votes.

23. All of the computer controlled voting tabulation is done in a closed environment so that the voter and any observer cannot detect what is taking place unless there is a malfunction or other event which causes the observer to question the process. I saw first-hand that the manipulation and changing of votes can be done in real-time at the secret counting center which existed in Caracas, Venezuela. For me it was something very surprising and disturbing. I was in awe because I had never been present to actually see it occur and I saw it happen. So, I learned first-hand that it doesn't matter what the voter decides or what the paper ballot says. It's the software operator and the software that decides what counts – not the voter.

24. If one questions the reliability of my observations, they only have to read the words of [redacted] a time period in

which Smartmatic had possession of all the votes and the voting, the votes themselves and the voting information at their disposition in Venezuela. [redacted] he was assuring that the voting system implemented or used by Smartmatic was completely secure, that it could not be compromised, was not able to be altered.

25. But later, in 2017 when there were elections where Maduro was running and elections for legislators in Venezuela, [redacted] and Smartmatic broke their secrecy pact with the government of Venezuela. He made a public announcement through the media in which he stated that all the Smartmatic voting machines used during those elections were totally manipulated and they were manipulated by the electoral council of Venezuela back then. [redacted] stated that all of the votes for Nicholas Maduro and the other persons running for the legislature were manipulated and they actually had lost. So I think that's the greatest proof that the fraud can be carried out and will be denied by the software company that [redacted] admitted publicly that Smartmatic had created, used and still uses vote counting software that can be manipulated or altered.

26. I am alarmed because of what is occurring in plain sight during this 2020 election for President of the United States. The circumstances and events are eerily reminiscent of what happened with Smartmatic software electronically changing votes in the 2013 presidential election in Venezuela. What happened in the United States was that the vote counting was abruptly stopped in five states using Dominion software. At the time that vote counting was stopped, Donald Trump was significantly ahead in the votes. Then during the wee hours of the morning, when there was no voting occurring and the vote count reporting was off-line, something significantly changed. When the vote reporting resumed the very next morning there was a very pronounced change in voting in favor of the opposing candidate, Joe Biden.

27. [redacted] I have worked in gathering information, researching, and working with information technology. That's what I know how to do and the special knowledge that I have. Due to these recent election events, I contacted a number of reliable and intelligent ex-co-workers of mine that are still informants and work with the intelligence community. I asked for them to give me information that was up-to-date information in as far as how all these businesses are acting, what actions they are taking.

I declare under penalty of perjury that the foregoing is true and correct and that this Declaration was prepared in Dallas County, State of Texas, and executed on November 15, 2020.

[redacted]

Exh. 3

STATEMENT BY ANA MERCEDES DÍAZ CARDOZO

I, Ana Mercedes Díaz Cardozo, hereby declare the following:

1. My name is Ana Mercedes Díaz Cardozo. I'm known as Ana Diaz by many. I am an adult of the sound mine and was born in Caracas, Venezuela on March 24, 1960. I'm a naturalized American citizen. I reside at 923 Gulf Stream Court, Weston, Florida 33327.

2. I make this statement voluntarily and on my own initiative. I have not been promised, nor do I expect to receive anything in exchange for my testimony and give this statement. I have no expectation of any benefit or reward and understand that there are those who can try to hurt me for what I say in this statement.

3. I moved from Venezuela to the United States in 2004 due to political corruption and rapid decline in my home country of Venezuela. I want to alert the public and let the world know the truth about corruption, manipulation, and lies committed through a conspiracy of individuals and businesses with the intention of betraying the honest people of the United States and its legally constituted institutions and fundamental rights as citizens. This conspiracy began more than a decade ago in Venezuela and has spread to countries around the world. It is a conspiracy to unjustly gain and maintain power and wealth. These are political leaders, powerful companies, and others whose purpose is to gain and maintain power by changing people's free will and subverting the proper course of governing.

4. After graduating from high school, I attended the University of Santa Maria in Caracas, Venezuela and graduated as a lawyer in 1987. Then I studied a postgraduate degree in administrative law at the University of Central Venezuela. Before I could submit my thesis for a Master's degree in Administrative Law, I moved to the United States. I'm certified as an arbiter of international trade.

5. I was a career official for 25 years at the Supreme Electoral Council of Venezuela, which is the name that it was called in the 1970's. It is currently called the National Electoral Council. This is the highest electoral administrative agency in Venezuela and oversees all elections in Venezuela. In 1979, at the age of 19, I began my career at the Supreme Electoral Council of Venezuela as secretary in the regional delegation of the federal district. When I graduated from the university as a lawyer, my position on the Supreme Electoral Council changes to the position as an adviser to the Judicial Council of the Supreme Council Electoral. In 1991, I was appointed Assistant Director General of Political Parties, where I served until Hugo Chavez came to power in 1998. Also during this time, I served for seven years as a member of the Legislative Commission of the Venezuelan Electoral Council. It was the role of the Legislative Commission to review and identify any issues related to candidates

for elected positions. The Legislative Commission and my office had access to many resources within the various departments of the Electoral Council, including an information technology section that had experts in computers, computer programming, computer systems and telecommunications features such as modems, telephone lines. I was regularly in communication with the various departments of the Electoral Body for my daily duties. In the last years of my work for the Electoral Counsel, a little of my activities and duties were to learn about electronic voting systems and their functioning by Council experts.

6. As Deputy Director General of Political Parties in the Supreme Electoral Council, it was my duty to oversee everything related to political parties in Venezuela, particularly the participation of political parties in elections and the selection and qualifications of candidates for political office. My office reviewed everything to do with the ability of political parties to participate in the electoral process. Before a political party could be formed, it had to undergo a process for approval. This included legal approval of the party name, its colors and a list of its members. The proposed party had to have a certain percentage of Venezuela's population depending on whether it wanted to be a regional or national party. It could not be constituted as a political party until it was approved by the Supreme Electoral Council. My office also oversaw the creation of ballots that bore the name of the candidates and any party symbol or color that the candidate would like to use. When our office approved these matters, we sent the ballot for printing and circulation. Any conflict over which group could be a political party, which would be a candidate for elected office, how that candidate would be included in the vote, were decided by my office. I was a signatory to all decisions taken by the Political Parties office at the Supreme Electoral Council.

7. After Hugo Chavez was elected, he changed the Venezuelan Constitution. One such change was in the Supreme Electoral Council, now the Electoral Power. In February 2009, a national referendum was passed to change Venezuela's Constitution to end mandate limits for elected officials, including the President of Venezuela. This change allowed Hugo Chavez to be re-elected an unlimited number of times.

8. In 2003, I was appointed Director General of Political Parties at the National Electoral Council. At the end of that year there was a national effort to hold a referendum to remove Hugo Chavez from the post of President. In 2004 I was appointed to the Validation Committee that was responsible for reviewing petitions, the requirements of the signatories were their name, their signature, their fingerprint and their identification number. I discovered many ways that the party in power was trying to override requests. One was the change of forms to reflect that the petition was a referendum on the removal of members of the Venezuelan Congress

rather than the removal of the Venezuelan president. The purpose of manipulating petitions was to prevent a referendum to remove President Chavez from office. I investigated the allegations of fraud with the referendum petitions and lobbied for the fraudulent changes to be rectified. Because of my resistance and protests to this voter fraud, I received a letter in March 2004 stating that my position was trusted and trust had been lost in me and I was fired from the service.

9. After my dismissal, I decided to commit to the study of electoral processes both within Venezuela and in other countries, particularly in South American countries that were experiencing electoral unrest and government manipulation of constitutions, laws and elections. I joined a small group of highly educated and informed people who had access to information about the Venezuelan government and its activities. This group and I conduct interviews with Venezuelan citizens, read news publications and specialized treaties, and write evaluating the political, economic, legal and electoral changes taking place in Venezuela, South American countries, and other parts of the world controlled by socialist dictators and oligarchies. I read these treatises, studies, and publications to educate myself on how elections were manipulated and the use of empirical analysis to detect and identify the manipulation of elections and their results. In addition, I have collected copies of official Venezuelan government documents.

10. Official documents of the Venezuelan government include documents showing the bidding process for the implementation of a new electronic voting system in March 2004 and the award of the contract for that new system to Smartmatic. A true and authentic copy of the venezuelan National Electoral Council's tender documents, internal memorandums and contract signed between the Venezuelan government and the SBC Consortium (Smartmatic) are labeled Exhibit 1 and this statement is attached. I received the documents that constitute Exhibit 1 from a reliable person who had taken some notes on the documents and highlighted some parts for my attention. I have not made any alterations to what I have received, and the substantive content of the documents is authentic. For convenience, I've had the Bates document tagged at the bottom right of each page.

11. I have studied the documents contained in Exhibit 1 and have several observations. Exhibit 1 says that it is a contract between the National Electoral Council and the SBC Consortium (Smartmatic) and is dated 15 March 2004. It has a stamp that says Bolivarian Republic of Venezuela, Secretary General of the National Electoral Council. That is the official seal of the Secretary of the National Electoral Council. The initials at the bottom right side confirm the document's authenticity.

12. You would notice that page DIAZ 00002 is important because it shows that the contract is being made on February 16, 2004. Page DIAZ 00027, reflects that on February 14, 2004 at 11:50 a.m., in the Council's session room, Francisco Carrasquero López, Ezequiel Zamora Presilla, Jorge Rodríguez Gómez (Jorge Rodríguez), Sobella Mejías, and William Pacheco Medina, Vice President, the directors of the Secretary General of Electoral Voters respectively, in order to proceed with the delivery to the technical commissions, designated at the meeting dated 13 February 2004, they opened the tender envelopes containing the tenders of the companies that wanted to be awarded a contract for the automation of Venezuela's voting system and the processes used to carry out the 2004 referendum on the revocation of Hugo Chavez's election. Below you can read the amounts of offers made by Smartmatic SBC, Diebold and other bidders.

13. Then, on page DIAZ 000031, there is an internal note from the Director General of Administration, Mr. Medina. It was dated 14 February 2004 and said that a report on the research and evaluation of companies bidding for the automation of the voting system needed to be prepared.

14. It would then draw attention to the page marked DIAZ 000029. It is a document made on February 13, 2004. While this page is out of sequence, it shows the speed at which the decision was made to award the electoral system contract. The tender began on February 13 and had ended on February 16th -- a three-day period to review contracts and evaluate the specifications and performance of bidders' systems, including software, hardware, security, performance and bidding costs for the procurement, installation, training and operation of the systems. By February 16th, a decision to choose Smartmatic was made. This is convincing evidence that there was no genuine competition for the electoral system contract or serious consideration for alternative contracts. There was no due diligence and the bidding was rigged. It is not possible that within three or four days to do the formal investigation to evaluate the bids and award a contract of this size and important. The impropriety of this action is confirmed by the fact that the contract with Smartmatic was signed a month later, on 15 March 2004.

15. After the contract was awarded to Smartmatic, it was learned that Smartmatic had no previous experience in conducting elections and electoral tabulations. More importantly, it was discovered that the Smartmatic voting system contained two-way communication functions that allowed voting data not only to be sent to a central system of operation and voting, but the central voting system in operation and tabulation to send operational instructions and data to voting machines. It is not mentioned in the contract documents and specifications that the system would be bidirectional and would allow the transmission of data and instructions from the central operating system directly to voting machines. One

simply has to examine the system diagram on page DIAZ 000057 of Exhibit 1. If this feature of the Smartmatic system had been disclosed to the Electoral Council, it could not have adequately accepted Smartmatic's offer because it would allow the Smartmatic voting system to be handled in a way that manipulated votes and interfered with the legitimate voting and electoral process by impersonating the will to govern officials with the will of the electorate: the citizens of Venezuela. It was not surprising that Hugo Chávez and his successors then constantly won the election through the use and manipulation of the Smartmatic voting system.

16. In the 16 years since I left my post as Director General of Political Parties at the National Electoral Council of Venezuela, I have studied the electoral systems of Bolivia, Colombia, Ecuador, Guatemala, Honduras and Nicaragua and have observed elections and participated in pro-democratic forums in Colombia, Ecuador, Honduras and Nicaragua. I have also studied and researched electoral processes in Europe, participating in public academic conferences in Spain and Italy on the subject of democratic electoral processes.

17. Based on my specialized experiences with electoral systems, I have a firm view that no legitimate electronic voting system should be allowed to have the ability of two-way communications to send data and instructions between central tabulation operations and voting machines over telephone lines or the Internet. Having such characteristics compromise the integrity of the entire voting process by allowing injection of data and instructions to manipulate voting before, during and after an election and to avoid detection of processes and mechanisms designed to prevent voting manipulation and fraud.

I declare under penalty of perjury that the above is true and correct and that this Statement was prepared in Dallas County, Texas, and executed on November 20, 2020.

Ana Mercedes Díaz Cardozo

Exh. 4

EXHIBIT

2

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

DONNA CURLING, ET AL.,	)	
	)	
Plaintiffs,	)	
	)	**CIVIL ACTION**
vs.	)	
	)	**FILE NO. 1:17-cv-2989-AT**
BRAD RAFFENSPERGER, ET AL.,	)	
	)	
	)	
Defendants.	)	

DECLARATION OF HARRI HURSTI

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

1. My name is Harri Hursti. I am over the age of 21 and competent to give this testimony. The facts stated in this declaration are based on my personal knowledge, unless stated otherwise.

2. My background and qualifications in voting system cybersecurity are set forth in my December 16, 2019 declaration. (Doc. 680-1, pages 37 *et seq*). I stand by everything in that declaration and in my August 21, 2020 declaration. (Doc. 800-2).

3. I am also an expert in ballot scanning because of extensive background in digital imaging prior by work researching election systems. In addition, in 2005 I started an open source project for scanning and auditing paper ballots from images. As a result, I am familiar with different scanner types, how scanner settings and image processing features change the images, and how file format choices affect the quality and accuracy of the ballots.

4. I am engaged as an expert in this case by Coalition for Good Governance.

5. In developing this declaration and opinion, I visited Atlanta to observe certain operations of the June 9, 2020 statewide primary, and the August 11 runoff. During the June 9 election, I was an authorized poll watcher in some locations and was a public observer in others. On August 11, I was authorized as an expert inspecting and observing under the Coalition for Good Governance's Rule 34 Inspection request in certain polling places and the Fulton County Election Preparation Center. As I will explain below in this declaration, my extensive experience in the area of voting system security and my observations of these elections lead to additional conclusions beyond those in my December 16, 2019 declaration. Specifically:

a) the scanner and tabulation software settings being employed to determine which votes to count on hand marked paper ballots are likely causing clearly intentioned votes not to be counted;

b) the voting system is being operated in Fulton County in a manner that escalates the security risk to an extreme level; and

c) voters are not reviewing their BMD printed ballots, which causes BMD generated results to be un-auditable due to the untrustworthy audit trail.

Polling Place Observations

6. Election observation on Peachtree Christian Church. The ballot marking devices were installed so that 4 out of 8 touchscreen devices were clearly visible from the pollbook check in desk. Voter's selections could be effortlessly seen from over 50 ft away.

7. Over period of about 45 minutes, I only observed one voter who appeared to be studying the ballot after picking it up from the printer before casting it in the scanner. When voters do not fully verify their ballot prior to casting, the ballots cannot be considered a reliable auditable record.

8. The scanner would reject some ballots and then accept them after they were rotated to a different orientation. I noted that the scanner would vary in the amount of time that it took to accept or reject a ballot. The delay varied between 3

and 5 seconds from the moment the scanner takes the ballot until the scanner either accepts the ballot or rejects it. This kind of behavior is normal on general purpose operating systems multitasking between multiple applications, but a voting system component should be running only a single application without outside dependencies causing variable execution times.

9. Further research is necessary to determine the cause of the unexpected scanning delays. A system that is dedicated to performing one task repeatedly should not have unexplained variation in processing time. As security researcher, we are always suspicious about any unexpected variable delays, as those are common telltale signs of many issues, including a possibility of unauthorized code being executed. So, in my opinion changes of behaviors between supposedly identical machines performing identical tasks should always be investigated.

When ballots are the same and are produced by a ballot marking device, there should be no time difference whatsoever in processing the bar codes. Variations in time can be the result of many things - one of them is that the scanner encounters an error reading the bar code and needs to utilize error correcting algorithms to recover from that error. Further investigation is

necessary to determine the root cause of these delays, the potential impact of the error correcting algorithms if those are found to be the cause, and whether the delay has any impact upon the vote.

10. Election observation in Central Park Recreation Center. The Poll place manager told me that no Dominion trained technician had reported on location to help them that morning.

11. The ballot marking devices were originally installed in a way that voter privacy was not protected, as anyone could observe across the room how people are voting on about 2/3 devices.

12. The ballot scanner took between 4 and 6 seconds to accept the ballot. I observed only one ballot being rejected.

13. Generally, voters did not inspect the ballots after taking it from the printer and casting it into the scanner.

14. Election observation in Fanplex location. Samantha Whitley and Harrison Thweatt were poll watchers at the Fanplex polling location. They contacted me at approximately 9:10am about problems they were observing with the operation of the BMDs and Poll Pads and asked me to come to help them

understand the anomalies they were observing. I arrived at FanPlex at approximately 9:30am.

15. I observed that the ballot scanner located by a glass wall whereby standing outside of the building observe the scanning, would take between 6 and 7 seconds to either accept or reject the ballot.

16. For reasons unknown, on multiple machines, while voters were attempting to vote, the ballot marking devices sometimes printed "test" ballots. I was not able to take a picture of the ballot from the designated observation area, but I overheard the poll worker by the scanner explaining the issue to a voter which was sent back to the Ballot-Marking Device to pick up another ballot from the printer tray. Test ballots are intended to be used to test the system but without being counted by the system during an election. The ballot scanner in election settings rejects test ballots, as the scanners at FanPlex did. This caused confusion as the voters needed to return to the ballot-marking device to retrieve the actual ballot. Some voters returned the test ballot into the printer tray, potentially confusing the next voter. Had voters been reviewing the ballots at all before taking them to the scanner, they would have noticed the "Test Ballot" text on the ballot. I observed no voter really questioning a poll worker why a "Test" ballot was printed in the first place.

17. Obviously, during the election day, the ballot marking device should not be processing or printing any ballot other than the one the voter is voting. While the cause of the improper printing of ballots should be examined, the fact that this was happening at all is likely indicative of a wrong configuration given to the BMD, which in my professional opinion raises another question: Why didn't the device print only test ballots? And how can the device change its behavior in the middle of the election day? Is the incorrect configuration originating from the Electronic Pollbook System? What are the implications for the reliability of the printed ballot and the QR code being counted?

18. Election observation Park Tavern. The scanner acceptance delay did not vary as it had in previous locations and was consistently about 5 seconds from the moment the scanner takes the ballot, to the moment the scanner either accepts the ballot or rejects it. The variation between scanners at different locations is concerning because these are identical physical devices and should not behave differently while performing the identical task of scanning a ballot.

19. The vast majority of voters at Park Tavern did not inspect the ballots after taking them from the printer and before casting them in the scanner.

Fulton Tabulation Center Operation-Election Night, August 11, 2020

20. In Fulton County Election Preparation Center ("EPC") on election night I reviewed certain operations as authorized by Rule 34 inspection.

21. I was permitted to view the operations of the upload of the memory devices coming in from the precincts to the Dominion Election Management System ("EMS") server. The agreement with Fulton County was that I could review only for a limited period of time; therefore, I did not review the entire evening's process. Also, Dominion employees asked me to move away from the monitors containing the information and messages from the upload process and error messages, limiting my ability to give a more detailed report with documentation and photographs of the screens. However, my vantage point was more than adequate to observe that system problems were recurring and the Dominion technicians operating the system were struggling with the upload process.

22. It is my understanding the same EMS equipment and software had been used in Fulton County's June 9, 2020 primary election.

23. It is my understanding that the Dominion technician ("Dominic") charged with operating the EMS server for Fulton County had been performing

these duties at Fulton County for several months, including during the June 9 primary.

24. During my August 11 visit, and a follow-up visit on August 17, I observed that the EMS server was operated almost exclusively by Dominion personnel, with little interaction with EPC management, even when problems were encountered. In my conversations with Derrick Gilstrap and other Fulton County Elections Department EPC personnel, they professed to have limited knowledge of or control over the EMS server and its operations.

25. Outsourcing the operation of the voting system components directly to the voting system vendors' personnel is highly unusual in my experience and of grave concern from a security and conflict of interest perspective. Voting system vendors' personnel have a conflict of interest because they are not inclined to report on, or address, defects in the voting systems. The dangers this poses is aggravated by the absence of any trained County personnel to oversee and supervise the process.

26. In my professional opinion, the role played by Dominion personnel in Fulton County, and other counties with similar arrangements, should be considered an elevated risk factor when evaluating the security risks of Georgia's voting system.

27. Based on my observations on August 11 and August 17, Dell computers running the EMS that is used to process Fulton county votes appeared not to have been hardened.

28. In essence, hardening is the process of securing a system by reducing its surface of vulnerability, which is larger when a system performs more functions; in principle it is to the reduce the general purpose system into a single-function system which is more secure than a multipurpose one. Reducing available ways of attack typically includes changing default passwords, the removal of unnecessary software, unnecessary usernames or logins, grant accounts and programs with the minimum level of privileges needed for the tasks and create separate accounts for privileged operations as needed, and the disabling or removal of unnecessary services.

29. Computers performing any sensitive and mission critical tasks such as elections should unquestionably be hardened. Voting system are designated by the Department of Homeland Security as part of the critical infrastructure and certainly fall into the category of devices which should be hardened as the most fundamental security measure. In my experience, it is unusual, and I find it unacceptable for an EMS server not to have been hardened prior to installation.

30. The Operating System version in the Dominion Election Management computer, which is positioned into the rack and by usage pattern appears to be the main computer, is Windows 10 Pro 10.0.14393. This version is also known as the Anniversary Update version 1607 and it was released August 2, 2016. Exhibit A is a true and correct copy of a photograph that I took of this computer.

31. When a voting system is certified by the EAC, the Operating System is specifically defined, as Windows 10 Pro was for the Dominion 5.5-A system. Unlike consumer computers, voting systems do not and should not receive automatic "upgrades" to newer versions of the Operating System. without undergoing tests for conflicts with the new operating system software.

32. That computer and other computers used in Georgia's system for vote processing appear to have home/small business companion software packages included. Exhibits B and C are true and correct copies of photographs that I took of the computer located in the rack and the computer located closest to the rack on the table to the right. The Start Menu shows a large number of game and entertainment software icons. As stated before, one of the first procedures of hardening is removal of all unwanted software, and removal of those game icons and the associated games and installers alongside with all other software which is not absolutely needed in the computer for election processing purposes would be

one of the first and most basic steps in the hardening process. In my professional opinion, independent inquiry should be promptly made of all 159 counties to determine if the Dominion systems statewide share this major deficiency.

33. Furthermore, when I asked the Dominion employee Dominic assigned to the Fulton County election server operation about the origin of the Windows operating system, he answered that he believed that "it has been provided by the State."

34. Since Georgia's Dominion system is new, it is a reasonable assumption that all machines in the Fulton County election network had the same version of Windows installed. However, not only the two computers displayed different entertainment software icons, but additionally one of the machines in Fulton's group of election servers had an icon of computer game called "*Homescapes"* which is made by Playrix Holding Ltd., founded by Dmitry and Igor Bukham in Vologda, Russia. Attached as Exhibit C is a true and correct copy of a photograph that I took of the Fulton voting system computer" Client 02". The icon for Homescapes is shown by the arrow on Exhibit C.

35. The *Homescapes* game was released in August 2017, one year after Fulton County's operating system release. If the *Homescapes* game came with the operating system it would be unusual, because at the time of the release of

Homescapes, Microsoft had already released 3 major Microsoft Windows 10 update releases after build 14393 and before the release of that game. This calls into question whether all Georgia Dominion system computers have the same operating system version, or how the game has come to be having a presence in Fulton's Dominion voting system.

36. Although this Dominion voting system is new to Georgia, the Windows 10 operating system of at least the 'main' computer in the rack has not been updated for 4 years and carries a wide range of well-known and publicly disclosed vulnerabilities. At the time of this writing, The National Vulnerability Database maintained by National Institute of Standards and Technology lists 3,177 vulnerabilities mentioning "Windows 10 Pro" and 203 vulnerabilities are specifically mentioning "Windows 10 Pro 1607" which is the specific version number of the build 14393 that Dominion uses.

37. Even without internet connectivity, unhardened computers are at risk when those are used to process removable media. It was clear that when Compact Flash storage media containing the ballot images, audit logs and results from the precinct scanners were connected to the server, the media was automounted by the operating system. When the operating system is automounting a storage media, the operating system starts automatically to interact with the device. The zero-day

vulnerabilities exploiting this process has been recurringly discovered from all operating systems, including Windows. Presence of automount calls also into question presence of another setting which is always disabled in hardening process. It is autorun, which automatically executes some content on the removable media. While this is convenient for consumers, it poses extreme security risk.

38. Based on my experience and mental impression observing the Dominion technician's activities, Fulton County's EMS server management seems to be an *ad hoc* operation with no formalized process. This was especially clear on the manual processing of the memory cards storage devices coming in from the precincts on election night and the repeated access of the operating system to directly access filesystem, format USB devices, etc. This kind of operation in naturally prone to human errors. I observed personnel calling on the floor asking if all vote carrying compact flash cards had been delivered from the early voting machines for processing, followed by later finding additional cards which had been overlooked in apparent human error. Later, I heard again one technician calling on the floor asking if all vote carrying compact flashes had been delivered. This clearly demonstrates lack of inventory management which should be in place to ensure, among other things, that no rogue storage devices would be inserted into the computer. In response, 3 more compact flash cards were hand-delivered. Less

than 5 minutes later, I heard one of the county workers say that additional card was found and was delivered for processing. All these devices were trusted by printed label only and no comparison to an inventory list of any kind was performed.

39. In addition, operations were repeatedly performed directly on the operating system. Election software has no visibility into the operations performed directly on the operating system, and therefore those are not included in election system event logging. Those activities can only be partially reconstructed from operating system logs – and as these activities included copying election data files, election software log may create false impression that the software is accessing the same file over a period of time, while in reality the file could had been replaced with another file with the same name by activities commanded to the operating system. Therefore, any attempt to audit the election system operated in this manner must include through analysis of all operating system logs, which complicates the auditing process. Unless the system is configured properly to collect file system auditing data is not complete. As the system appears not to be hardened, it is unlikely that the operating system has been configured to collect auditing data.

40. A human error when operating live election system from the operating system can result in a catastrophic event destroying election data or even rendering the system unusable. Human error is likely given the time pressure involved and,

at least in Fulton County, no formal check lists or operating procedures were followed to mitigate the human error risk. The best practice is to automate trivial tasks to reduce risk of human error, increase the quality assurance of overall operations and provide auditability and transparency by logging.

41. Uploading of memory cards had already started before I arrived at EPC. While one person was operating the upload process, the two other Dominion employees were troubleshooting issues which seemed to be related to ballot images uploads. I repeatedly observed error messages appearing on the screen of the EMS server. I was not able to get picture of the errors on August 11th, I believe the error was the same or similar that errors recurring August 17th as shown on Exhibit D and discussed later in this declaration. Dominion employees were troubleshooting the issue with 'trial-and-error' approach. As part of this effort they accessed "Computer Management" application of Windows 10 and experimented with trouble shooting the user account management feature. This demonstrates that they had complete access to the computer. This means there are no meaningful access separation and privileges and roles controls protecting the county's primary election servers. This also greatly amplifies the risk of catastrophic human error and malicious program execution.

42. I overheard the Dominion technician's conversation that they had issues with file system structure and "need 5 files out of EMS server and paste. Delete everything out of there and put it there." To communicate the gravity of the situation to each other they added "Troubleshooting in the live environment". These conversations increased the mental image that they were not familiar the issue they were troubleshooting.

43. After about 45 minutes of trying to solve the issue by instructions received over the phone, the two Dominion employees' (who had been troubleshooting) behavior changed. The Dominion staff member walked behind the server rack and made manual manipulations which could not be observed from my vantage point. After that they moved with their personal laptops to a table physically farther away from the election system and stopped trying different ways to work around the issue in front of the server, and no longer talked continuously with their remote help over phone.

44. In the follow-up-calls I overheard them ask people on the other end of the call to check different things, and they only went to a computer and appeared to test something and subsequently take a picture of the computer screen with a mobile phone and apparently send it to a remote location.

45. Based on my extensive experience, this all created a strong mental impression that the troubleshooting effort was being done remotely over remote access to key parts of the system. Additionally, new wireless access point with a hidden SSID access point name appeared in the active Wi-Fi stations list that I was monitoring, but it may have been co-incidental. Hidden SSIDs are used to obscure presence of wireless networking from casual observers, although they do not provide any real additional security.

46. If in fact remote access was arranged and granted to the server, this has gravely serious implications for the security of the new Dominion system. Remote access, regardless how it is protected and organized is always a security risk, but furthermore it is transfer of control out of the physical perimeters and deny any ability to observe the activities.

47. I also observed USB drives marked with the Centon DataStick Pro Logo with no visible inventory control numbering system being taken repeatedly from the EMS server rack to the Fulton managers' offices and back. The Dominion employee told me that the USB drives were being taken to the Election Night Reporting Computer in another office. This action was repeated several times during the time of my observation. Carrying generic unmarked and therefore unidentifiable media out-of-view and back is a security risk – especially when the

exact same type of devices was piled on the desk near the computer. During the election night, the Dominion employees reached to storage box and introduced more unmarked storage devices into the ongoing election process. I saw no effort made to maintain a memory card inventory control document or chain of custody accounting for memory cards from the precincts.

48. I also visited the EPC on August 17. During that visit, the staff working on uploading ballots for adjudication experienced an error which appeared similar to the one on election night. This error was repeated with multitude of ballots and at the time we left the location, the error appeared to be ignored, rather that resolved. (EXHIBIT D - the error message and partial explanation of the error being read by the operator.).

49. The security risks outlined above – operating system risks, the failure to harden the computers, performing operations directly on the operating systems, lax control of memory cards, lack of procedures, and potential remote access, are extreme and destroy the credibility of the tabulations and output of the reports coming from a voting system.

50. Such a risk could be overcome if the election were conducted using hand marked paper ballots, with proper chain of custody controls. For elections conducted with hand marked paper ballots, any malware or human error involved

in the server security deficiencies or malfunctions could be overcome with a robust audit of the hand marked paper ballots and in case of irregularities detected, remedied by a recount. However, given that BMD ballots are computer marked, and the ballots therefore unauditable for determining the result, no recovery from system security lapses is possible for providing any confidence in the reported outcomes.

Ballot Scanning and Tabulation of Vote Marks

51. I have been asked to evaluate the performance and reliability of Georgia's Dominion precinct and central count scanners in the counting of votes on hand marked paper ballots.

52. On or about June 10th, Jeanne Dufort and Marilyn Marks called me to seek my perspective on what Ms. Dufort said she observed while serving as a Vote Review Panel member in Morgan County. Ms. Dufort told me that she observed votes that were not counted as votes nor flagged by the Dominion adjudication software.

53. Because of the ongoing questions this raised related to the reliability of the Dominion system tabulation of hand marked ballots, I was asked by Coalition Plaintiffs to conduct technical analysis of the scanner and tabulation accuracy. That analysis is still in its early stages.

54. Before addressing the particulars of my findings and research into the accuracy of Dominion's scanning and tabulation, I will address the basic process by which an image on a voted hand marked paper ballot is processed by scanner and tabulation software generally. It is important to understand that the Dominion scanners are Canon off the shelf scanners and their embedded software were designed for different applications than ballot scanning which is best conducted with scanners specifically designed for detecting hand markings on paper ballots.

55. Contrary of public belief, the scanner is not taking a picture of the paper. The scanner is illuminating the paper with a number of narrow spectrum color lights, typically 3, and then using software to produce an approximation what the human eye would be likely to see if there would had been a single white wide-spectrum light source. This process takes place in partially within the scanner and embedded software in the (commercial off the shelf) scanner and partially in the driver software in the host computer. It is guided by number of settings and configurations, some of which are stored in the scanner and some in the driver software. The scanner sensors gather more information than will be saved into the resulting file and another set of settings and configurations are used to drive that part of the process. The scanners also produce anomalies which are automatically removed from the images by the software. All these activities are performed

outside of the Dominion election software, which is relying on the end product of this process as the input.

56. I began reviewing Dominion user manuals in the public domain to further investigate the Dominion process.

57. On August 14, I received 2 sample Fulton County August 11 ballots of high-speed scanned ballot from Rhonda Martin, who stated that she obtained them from Fulton County during Coalition Plaintiff's discovery. The image characteristics matched the file details I had seen on the screen in EPC. The image is TIFF format, about 1700 by 2200 pixels with 1-bit color depth (= strictly black or white pixels only) with 200 by 200 dots per square inch ("dpi") resolution resulting in files that are typically about 64 or 73 kilo bytes in size for August 11 ballots. With this resolution, the outer dimension of the oval voting target is about 30 by 25 pixels. The oval itself (that is, the oval line that encircles the voting target) is about 2 pixels wide. The target area is about 450 pixels; the area of the target a tight bounding box would be 750 pixels and the oval line encircling the target is 165 pixels. In these images, the oval itself represented about 22% value in the bounding box around the vote target oval.

58. Important image processing decisions are done in scanner software and before election software threshold values are applied to the image. These

scanner settings are discussed in an excerpt Dominion's manual for ICC operations My understanding is that the excerpt of the Manual was received from Marilyn Marks who stated that she obtained it from a Georgia election official in response to an Open Records request. Attached as Exhibit E is page 9 of the manual. Box number 2 on Exhibit E shows that the settings used are not neutral factory default settings.

59. Each pixel of the voters' marks on a hand marked paper ballot will be either in color or gray when the scanner originally measures the markings. The scanner settings affect how image processing turns each pixel from color or gray to either black or white in the image the voting software will later process. This processing step is responsible for major image manipulation and information reduction before the election software threshold values are calculated. This process has a high risk of having an impact upon how a voter mark is interpreted by the tabulation software when the information reduction erases markings from the scanned image before the election software processes it.

60. In my professional opinion, any decision by Georgia's election officials about adopting or changing election software threshold values is premature before the scanner settings are thoroughly tested, optimized and locked.

61. The impact of the scanner settings is minimal for markings made with a black felt pen but can be great for markings made with any color ballpoint pens. To illustrate this, I have used standard color scanning settings and applied then standard conversion from a scanned ballot vote target with widely used free and open source image processing software "GNU Image Manipulation Program version 2.10.18" EXHIBIT G shows the color image being converted with the software's default settings from color image to Black-and-White only. The red color does not meet the internal conversion algorithm criteria for black, therefore it gets erased to white instead.

62. Dominion manual for ICC operations clearly show that the scanner settings are changed from neutral factory default settings. EXHIBIT H shows how these settings applied different ways alter how a blue marking is converted into Black-and-White only image.

63. The optimal scanner settings are different for each model of scanner and each type of paper used to print ballots. Furthermore, because scanners are inherently different, the manufacturers use hidden settings and algorithms to cause neutral factory settings to produce similar baseline results across different makes and models. This is well-studied topic; academic and image processing studies published as early as 1979 discuss the brittleness of black-or-white images in

conversion. Subsequently, significance for ballot counting has been discussed in academic USENIX conference peer-reviewed papers.

64. On the August 17th at Fulton County Election Preparation Center Professor Richard DeMillo and I participated in a scan test of August 11 test ballots using a Fulton County owned Dominion precinct scanner. Two different ballot styles were tested, one with 4 races and one with 5 races. Attached as Exhibits I and J show a sample ballots with test marks.

65. A batch of 50 test ballots had been marked by Rhonda Martin with varying types of marks and varying types of writing instruments that a voter might use at home to mark an absentee ballot. Professor DeMillo and I participated in marking a handful of ballots.

66. Everything said here concerning the August 17 test is based on a very preliminary analysis. The scanner took about 6 seconds to reject the ballots, and one ballot was only acceptable "headfirst" while another ballot only "tail first." Ballot scanners are designed to read ballots "headfirst" or "tail first," and front side and backside and therefore there should not be ballots which are accepted only in one orientation. I observed the ballots to make sure that both ballots had been cleanly separated from the stub and I could not identify any defects of any kind on the ballots.

67. There was a 15 second cycle from the time the precinct scanner accepted a ballot to the time it was ready for the next ballot. Therefore, the maximum theoretical capacity with the simple 5 race ballot is about 4 ballots per minute if the next ballot is ready to be fed into the scanner as soon as the scanner was ready to take it. In a real-world voting environment, it takes considerably longer because voters move away from the scanner, the next voter must move in and subsequently figure where to insert the ballot. The Dominion precinct scanner that I observed was considerably slower than the ballot scanners I have tested over the last 15 years. This was done with a simple ballot, and we did not test how increase of the number of races or vote targets on the ballot would affect the scanning speed and performance.

68. Though my analysis is preliminary, this test reveals that a significant percentage of filled ovals that would to a human clearly show voter's intent failed to register as a vote on the precinct count scanner.

69. The necessary testing effort has barely begun at the time of this writing, as only limited access to equipment has been made available. I have not had access to the high-volume mail ballot scanner that is expected to process millions of mail ballots in Georgia's upcoming elections. However, initial results suggest that significant revisions must be made in the scanning settings to avoid a

widespread failure to count certain valid votes that are not marked as filled in ovals. Without testing, it is impossible to know, if setting changes alone are sufficient to cure the issue.

Scanned Ballot Tabulation Software Threshold Settings

70. Georgia is employing a Dominion tabulation software tool called "Dual Threshold Technology" for "marginal marks." (See Exhibit M) The intent of the tool is to detect voter marks that could be misinterpreted by the software and flag them for review. While the goal is admirable, the method of achieving this goal is quite flawed.

71. While it is compelling from development cost point of view to use commercial off the shelf COTS scanners and software, it requires additional steps to ensure that the integration of the information flow is flawless. In this case, the software provided by the scanner manufacturer and with settings and configurations have great impact in how the images are created and what information is removed from the images before the election software processes it. In recent years, many defective scanner software packages have been found. These software flaws include 'image enhancement' features which have remained enabled even when the feature has been chosen to be disabled from the scanner software provided by the manufacturer. An example of dangerous feature to keep

enabled is 'Punch Hole Removal', intended to make images of documents removed from notebook binders to look more aesthetically pleasing. The software can and in many cases will misinterpret a voted oval as a punch hole and erase the vote from the image file and to make this worse, the punch holes are expected to be found only in certain places near the edge of the paper, and therefore it will erase only votes from candidates whose targets are in those target zones.

72. Decades ago, when computing and storage capacity were expensive black-and-white image commonly meant 1-bit black-or-white pixel images like used by Dominion system. As computer got faster and storage space cheaper during the last 2-3 decades black-and-white image has become by default meaning 255 shades of gray grayscale images. For the purposes of reliable digitalization of physical documents, grayscale image carries more information from the original document for reliable processing and especially when colored markings are being processed. With today's technology, the difference in processing time and storage prices between grayscale and 1-bit images has become completely meaningless, and the benefits gained in accuracy are undeniable.

73. I am aware that the Georgia Secretary of State's office has stated that Georgia threshold settings are national industry standards for ballot scanners (Exhibit K). This is simply untrue. If, there were an industry standard for that, it

would be part of EAC certification. There is no EAC standard for such threshold settings. As mentioned before, the optimal settings are products of many elements. The type of the scanner used, the scanner settings and configuration, the type of the paper used, the type of the ink printer has used in printing the ballots, color dropout settings, just to name few. Older scanner models, which were optical mark recognitions scanners, used to be calibrated using calibration sheet – similar process is needed to be established for digital imaging scanners used this way as the ballot scanners.

74. Furthermore, the software settings in Exhibit E box 2 show that the software is instructed to ignore all markings in red color ("Color drop-out: Red"), This clearly indicates that the software was expecting the oval to be printed in Red and therefore it will be automatically removed from the calculation. The software does not anticipate printed black ovals as used in Fulton County. Voters have likely not been properly warned that any pen they use which ink contains high concentration of red pigment particles is at risk of not counting, even if to the human eye the ink looks very dark.

75. I listened to the August 10 meeting of the State Board of Elections as they approved a draft rule related to what constitutes a vote, incorporating the following language:

Ballot scanners that are used to tabulate optical scan ballots marked by hand shall be set so that:

1. Detection of 20% or more fill-in of the target area surrounded by the oval shall be considered a vote for the selection;

2. Detection of less than 10% fill-in of the target area surrounded by the oval shall not be considered a vote for that selection;

3. Detection of at least 10% but less than 20% fill-in of the target area surrounded by the oval shall flag the ballot for adjudication by a vote review panel as set forth in O.C.G.A. 21-2-483(g). In reviewing any ballot flagged for adjudication, the votes shall be counted if, in the opinion of the vote review panel, the voter has clearly and without question indicated the candidate or candidates and answers to questions for which such voter desires to vote.

76. The settings discussed in the rule are completely subject to the scanner settings. How the physical marking is translated into the digital image is determined by those values and therefore setting the threshold values without at the same time setting the scanner settings carries no value or meaning. If the ballots will be continuing to be printed with black only, there is no logic in having any drop-out colors.

77. Before the State sets threshold standards for the Dominion system, extensive testing is needed to establish optimal configuration and settings for each step of the process. Also, the scanners are likely to have settings additional configuration and settings which are not visible menus shown in the manual excerpt. All those should be evaluated and tested for all types of scanners approved for use in Georgia, including the precinct scanners

78. As temporary solution, after initial testing, the scanner settings and configuration should be locked and then a low threshold values should be chosen. All drop-out colors should be disabled. This will increase the number of ballots chosen for human review and reduce the number of valid votes not being counted as cast.

Logic and Accuracy Testing

79. Ballot-Marking Device systems inherits the same well-documented systemic security issues embedded in direct-recording electronic (DRE) voting machine design. Such design flaws eventually are causing the demise of DRE voting system across the country as it did in Georgia. In essence the Ballot Marking Device is a general-purpose computer running a general-purpose operating system with touchscreen that is utilized as a platform to run a software, very similar to DRE by displaying a ballot to the voter and recording the voter's intents. The main difference is that instead of recording those internally digitally, it prints out a ballot summary card of voter's choices.

80. Security properties of this approach would be positively different from DREs if the ballot contained only human-readable information and all voters are required to and were capable of verifying their choices from the paper ballot summary. That of course is unrealistic.

81. When voter fails to inspect the paper ballot and significant portion of the information is not in human readable from as a QR barcode, Ballot-Marking Device based voting effectively inherits most of the negative and undesirable security and reliability properties directly from DRE paradigm, and therefore should be subject to the same testing requirements and mitigation strategies as DREs.

82. In response to repeating myriad of issues with DREs, which have been attributed to causes from screen calibration issues to failures in ballot definition configuration distribution, a robust Logic & Accuracy testing regulation have been established. These root causes are present in BMDs and therefore should be evaluated in the same way as DREs have been.

I received the Georgia Secretary of State's manual "Logic and Accuracy Procedures "Version 1.0 January 2020 from Rhonda Martin. Procedure described in section D "Testing the BMD and Printer" is taking significant shortcuts, presumably to cut the labor work required. (Section D is attached as Exhibit L) These shortcuts significantly weaken the security and reliability posture of the system and protections against already known systemic pitfalls, usability predicaments and security inadequacies.

CONCLUSIONS

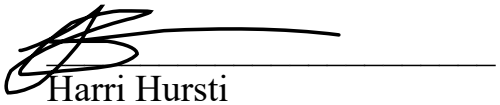
83. The scanner software and tabulation software settings and configurations being employed to determine which votes to count on hand marked paper ballots are likely causing clearly intentioned votes not to be counted as cast.

84. The method of using 1-bit images and calculated relative darkness values from such pre-reduced information to determine voter marks on ballots is severely outdated and obsolete. It artificially and unnecessarily increases the failure rates to recognize votes on hand-marked paper ballots. As a temporary mitigation, optimal configurations and settings for all steps of the process should be established after robust independent testing to mitigate the design flaw and augment it with human assisted processes, but that will not cure the root cause of the software deficiency which needs to be addressed.

85. The voting system is being deployed, configured and operated in Fulton County in a manner that escalates the security risk to an extreme level and calls into question the accuracy of the election results. The lack of well-defined process and compliance testing should be addressed immediately using independent experts. The use and the supervision of the Dominion personnel operating Fulton County's Dominion Voting System should be evaluated.

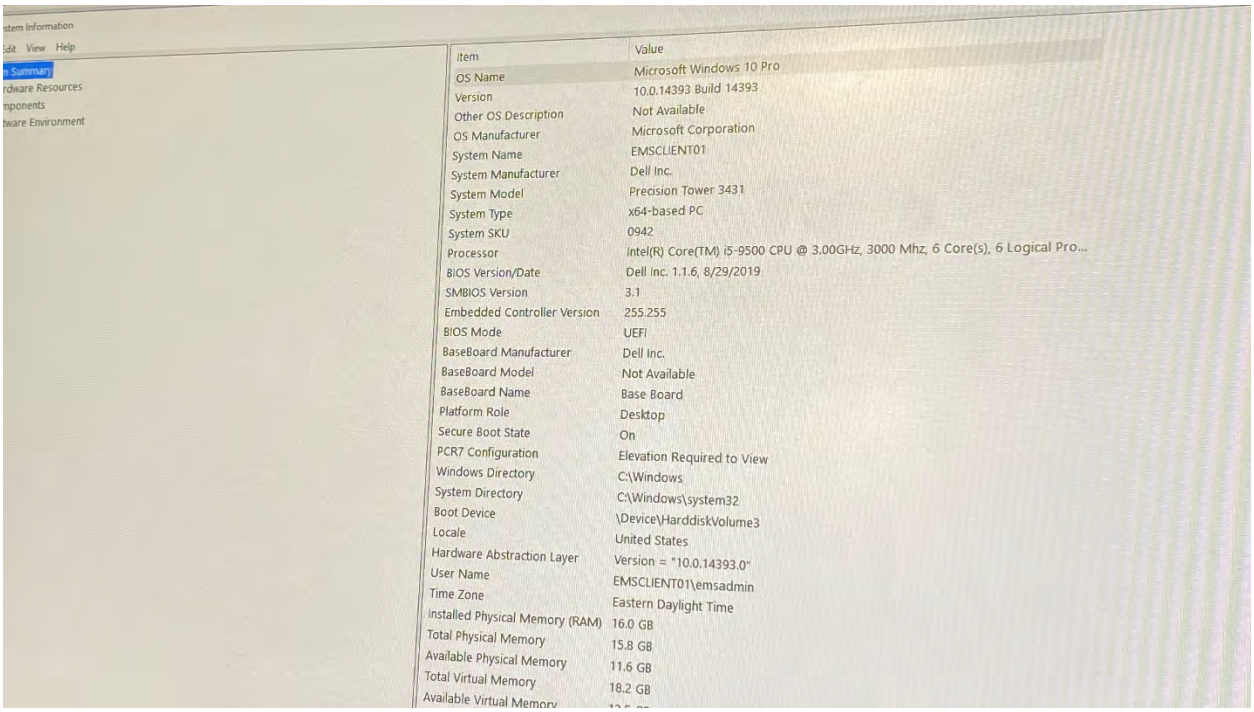
86. Voters are not reviewing their BMD printed ballots before scanning and casting them, which causes BMD-generated results to be un-auditable due to the untrustworthy audit trail. Furthermore, because BMDs are inheriting known fundamental architectural deficiencies from DREs, no mitigation and assurance measures can be weakened, including but not limited to Logic and Accuracy Testing procedures.

This 24th day of August 2020.



Harri Hursti

EXHIBIT A: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Summary
rdware Resources
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Microsoft Corporation
System Name
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System Manufacturer
Dell Inc.
System Model
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BIOS Version/Date
Dell Inc. 1.1.6, 8/29/2019
SMBIOS Version
3.1
Embedded Controller Version
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BIOS Mode
UEFI
BaseBoard Manufacturer
Dell Inc.
BaseBoard Model
Not Available
BaseBoard Name
Base Board
Platform Role
Desktop
Secure Boot State
On
PCR7 Configuration
Elevation Required to View
Windows Directory
C:\Windows
System Directory
C:\Windows\system32
Boot Device
\Device\HarddiskVolume3
Locale
United States
Hardware Abstraction Layer
Version = "10.0.14393.0"
User Name
EMSCLIENT01\emsadmin
Time Zone
Eastern Daylight Time
Installed Physical Memory (RAM)
16.0 GB
Total Physical Memory
15.8 GB
Available Physical Memory
11.6 GB
Total Virtual Memory
18.2 GB
Available Virtual Memory

EXHIBIT B:

MOCK
fwexportids
Most used
EMS Election Event Designer
File Explorer
EMS Results Tally and Reporting
Notepad
ImageCast® Adjudication
Calculator
1-Wire Drivers x64
3D Builder
Acrobat Reader DC
Alarms & Clock
Calculator
Calendar
Camera
Life at a glance
Monday
17
Get all your mail in one place
Mail
Microsoft Edge
Photos
Weather
Skype Preview
Microsoft News
Store
Microsoft Solitaire Collection
Play and explore
Xbox
Groove Music
Movies & TV
Paint 3D
SODA
WinZip Univer...
Get Office
OneNote
Fallout Shelter

EXHIBIT C:

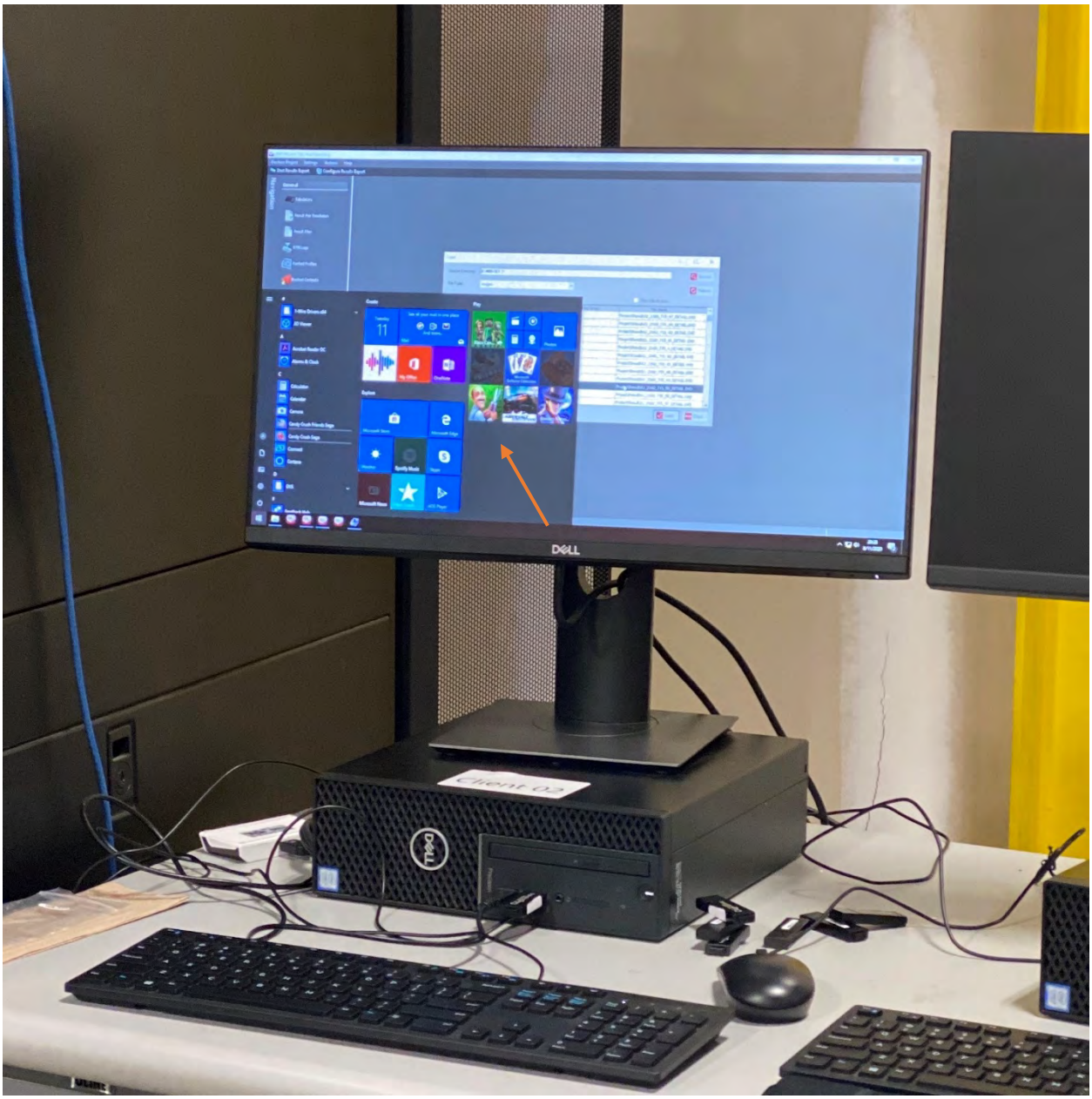


EXHIBIT D:

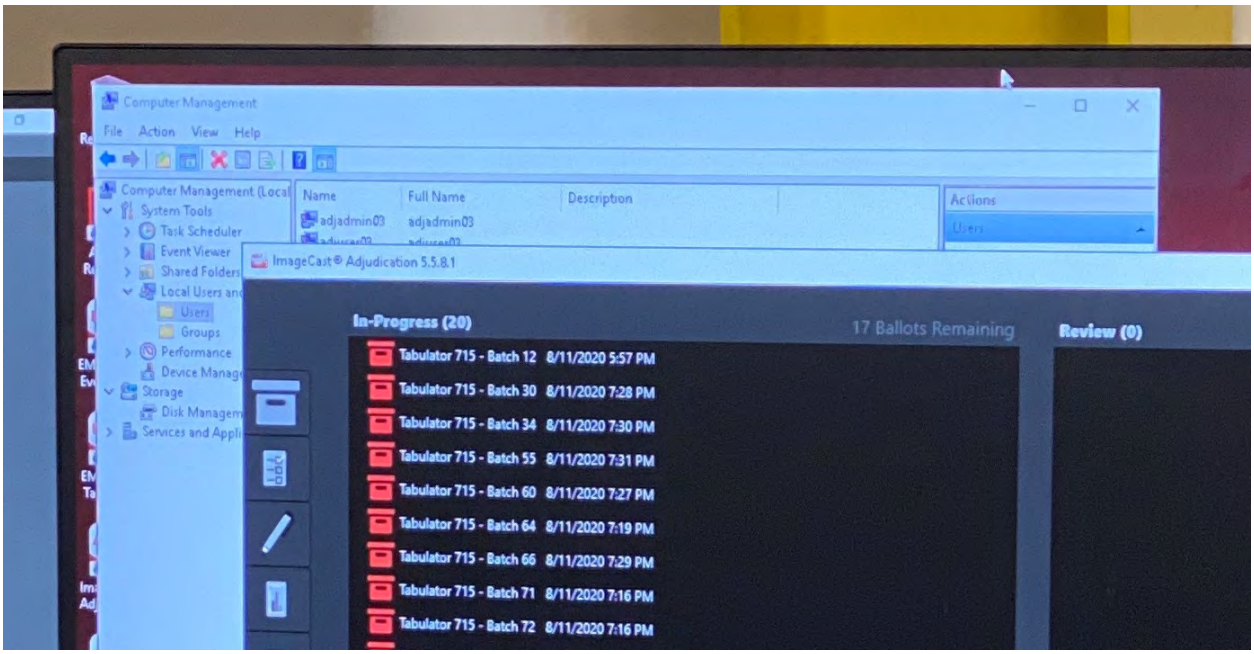
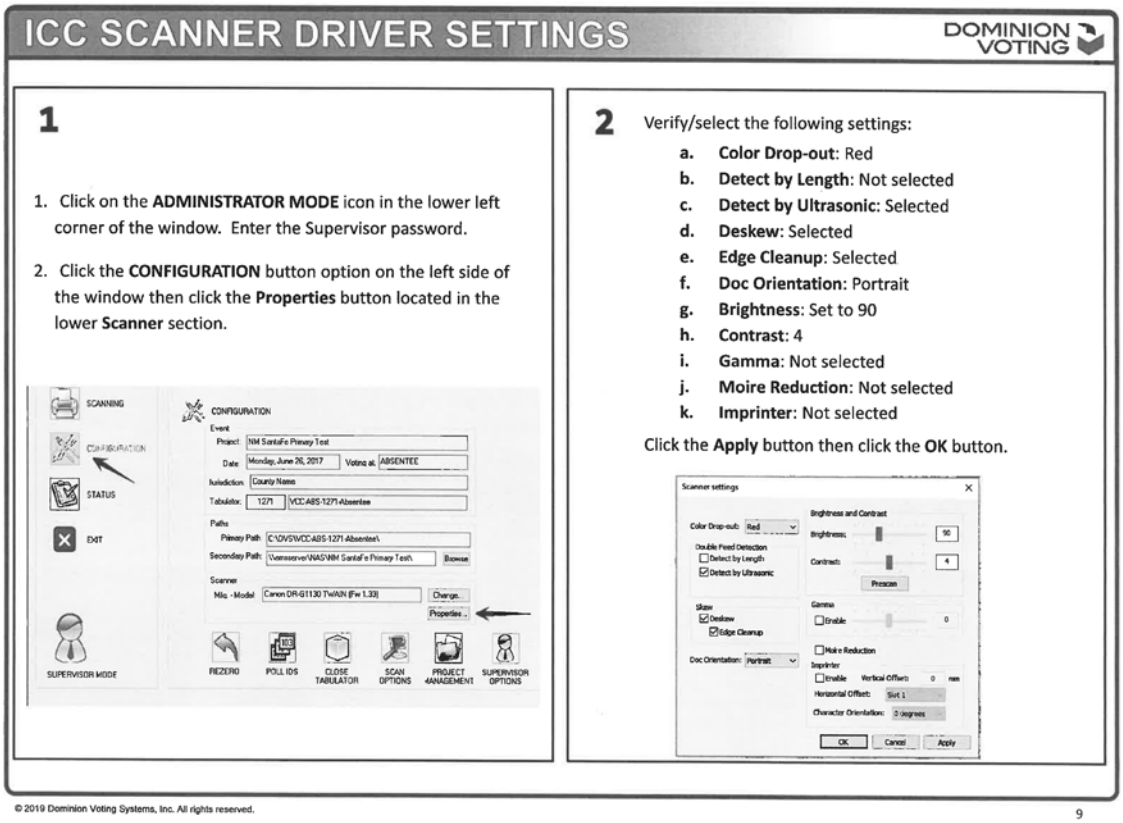

Computer Management
File Action View Help
Computer Management (Local
System Tools
Task Scheduler
Event Viewer
Shared Folders
Local Users and
Users
Groups
Performance
Device Manage
Storage
Disk Managem
Services and Appli
Name
Full Name
Description
adjadmin03
adjadmin03
Actions
Users
ImageCast® Adjudication 5.5.8.1
In-Progress (20)
17 Ballots Remaining
Review (0)
Tabulator 715 - Batch 12 8/11/2020 5:57 PM
Tabulator 715 - Batch 30 8/11/2020 7:28 PM
Tabulator 715 - Batch 34 8/11/2020 7:30 PM
Tabulator 715 - Batch 55 8/11/2020 7:31 PM
Tabulator 715 - Batch 60 8/11/2020 7:27 PM
Tabulator 715 - Batch 64 8/11/2020 7:19 PM
Tabulator 715 - Batch 66 8/11/2020 7:29 PM
Tabulator 715 - Batch 71 8/11/2020 7:16 PM
Tabulator 715 - Batch 72 8/11/2020 7:16 PM

EXHIBIT E:


ICC SCANNER DRIVER SETTINGS
DOMINION VOTING
1
1. Click on the ADMINISTRATOR MODE icon in the lower left corner of the window. Enter the Supervisor password.
2. Click the CONFIGURATION button option on the left side of the window then click the Properties button located in the lower Scanner section.
SCANNING
CONFIGURATION
STATUS
EXIT
SUPERVISOR MODE
REZERO
POLL IDS
CLOSE TABULATOR
SCAN OPTIONS
PROJECT MANAGEMENT
SUPERVISOR OPTIONS
2
Verify/select the following settings:
a. Color Drop-out: Red
b. Detect by Length: Not selected
c. Detect by Ultrasonic: Selected
d. Deskew: Selected
e. Edge Cleanup: Selected
f. Doc Orientation: Portrait
g. Brightness: Set to 90
h. Contrast: 4
i. Gamma: Not selected
j. Moire Reduction: Not selected
k. Imprinter: Not selected
Click the Apply button then click the OK button.
Scanner settings
OK
Cancel
Apply
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9

EXHIBIT F:

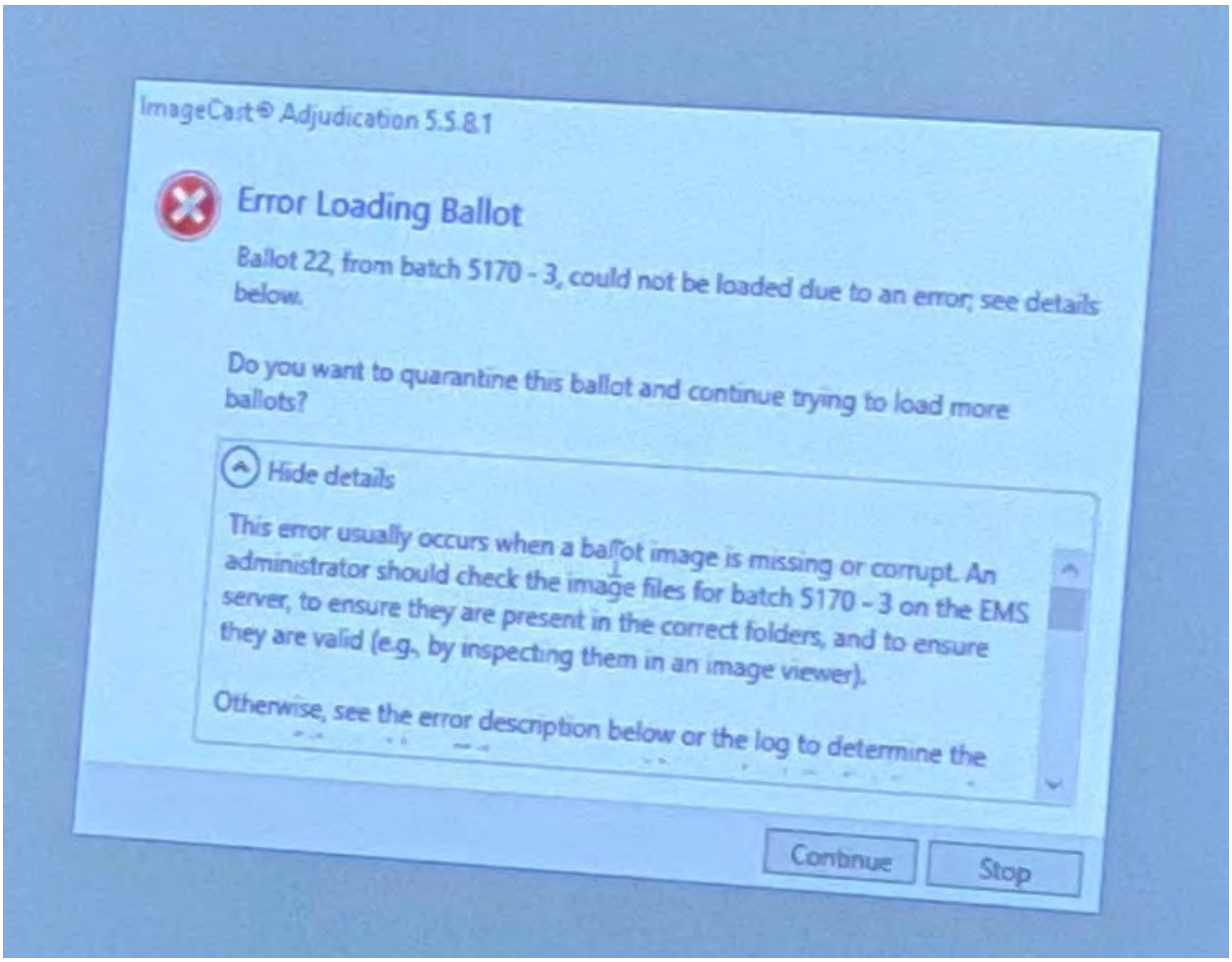

ImageCast® Adjudication 5.5.8.1
Error Loading Ballot
Ballot 22, from batch 5170 - 3, could not be loaded due to an error; see details below.
Do you want to quarantine this ballot and continue trying to load more ballots?
Hide details
This error usually occurs when a ballot image is missing or corrupt. An administrator should check the image files for batch 5170 - 3 on the EMS server, to ensure they are present in the correct folders, and to ensure they are valid (e.g., by inspecting them in an image viewer).
Otherwise, see the error description below or the log to determine the
Continue
Stop

EXHIBIT G:

EXHIBIT H:

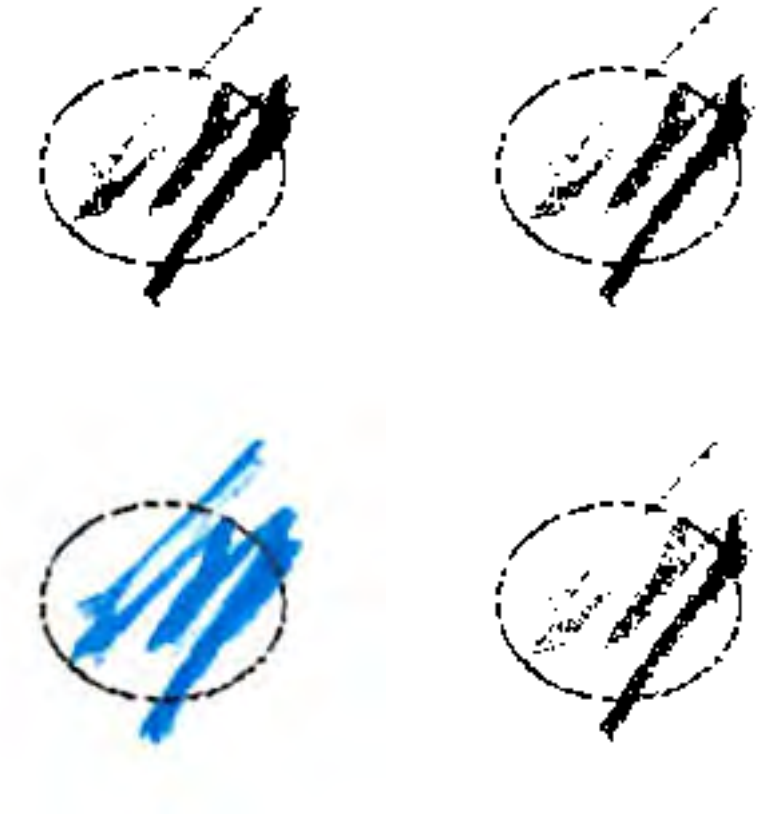
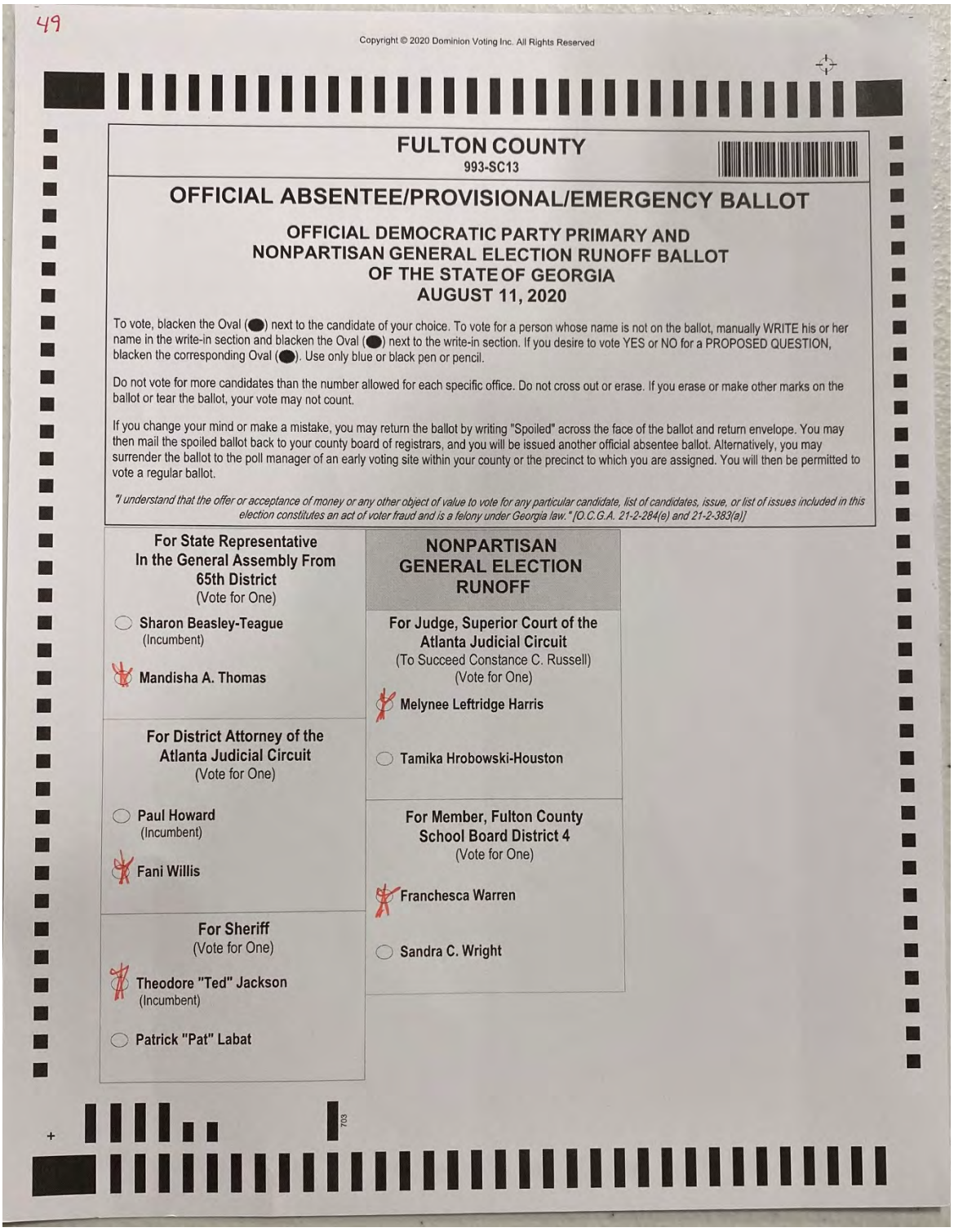


EXHIBIT I:



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FULTON COUNTY
993-SC13

OFFICIAL ABSENTEE/PROVISIONAL/EMERGENCY BALLOT

OFFICIAL DEMOCRATIC PARTY PRIMARY AND NONPARTISAN GENERAL ELECTION RUNOFF BALLOT OF THE STATE OF GEORGIA AUGUST 11, 2020

To vote, blacken the Oval (●) next to the candidate of your choice. To vote for a person whose name is not on the ballot, manually WRITE his or her name in the write-in section and blacken the Oval (●) next to the write-in section. If you desire to vote YES or NO for a PROPOSED QUESTION, blacken the corresponding Oval (●). Use only blue or black pen or pencil.

Do not vote for more candidates than the number allowed for each specific office. Do not cross out or erase. If you erase or make other marks on the ballot or tear the ballot, your vote may not count.

If you change your mind or make a mistake, you may return the ballot by writing "Spoiled" across the face of the ballot and return envelope. You may then mail the spoiled ballot back to your county board of registrars, and you will be issued another official absentee ballot. Alternatively, you may surrender the ballot to the poll manager of an early voting site within your county or the precinct to which you are assigned. You will then be permitted to vote a regular ballot.

"I understand that the offer or acceptance of money or any other object of value to vote for any particular candidate, list of candidates, issue, or list of issues included in this election constitutes an act of voter fraud and is a felony under Georgia law." [O.C.G.A. 21-2-284(e) and 21-2-383(e)]

For State Representative In the General Assembly From 65th District
(Vote for One)

- ◯ Sharon Beasley-Teague (Incumbent)
- ✓ Mandisha A. Thomas

For District Attorney of the Atlanta Judicial Circuit
(Vote for One)

- ◯ Paul Howard (Incumbent)
- ✓ Fani Willis

For Sheriff
(Vote for One)

- ✓ Theodore "Ted" Jackson (Incumbent)
- ◯ Patrick "Pat" Labat

NONPARTISAN GENERAL ELECTION RUNOFF

For Judge, Superior Court of the Atlanta Judicial Circuit
(To Succeed Constance C. Russell)
(Vote for One)

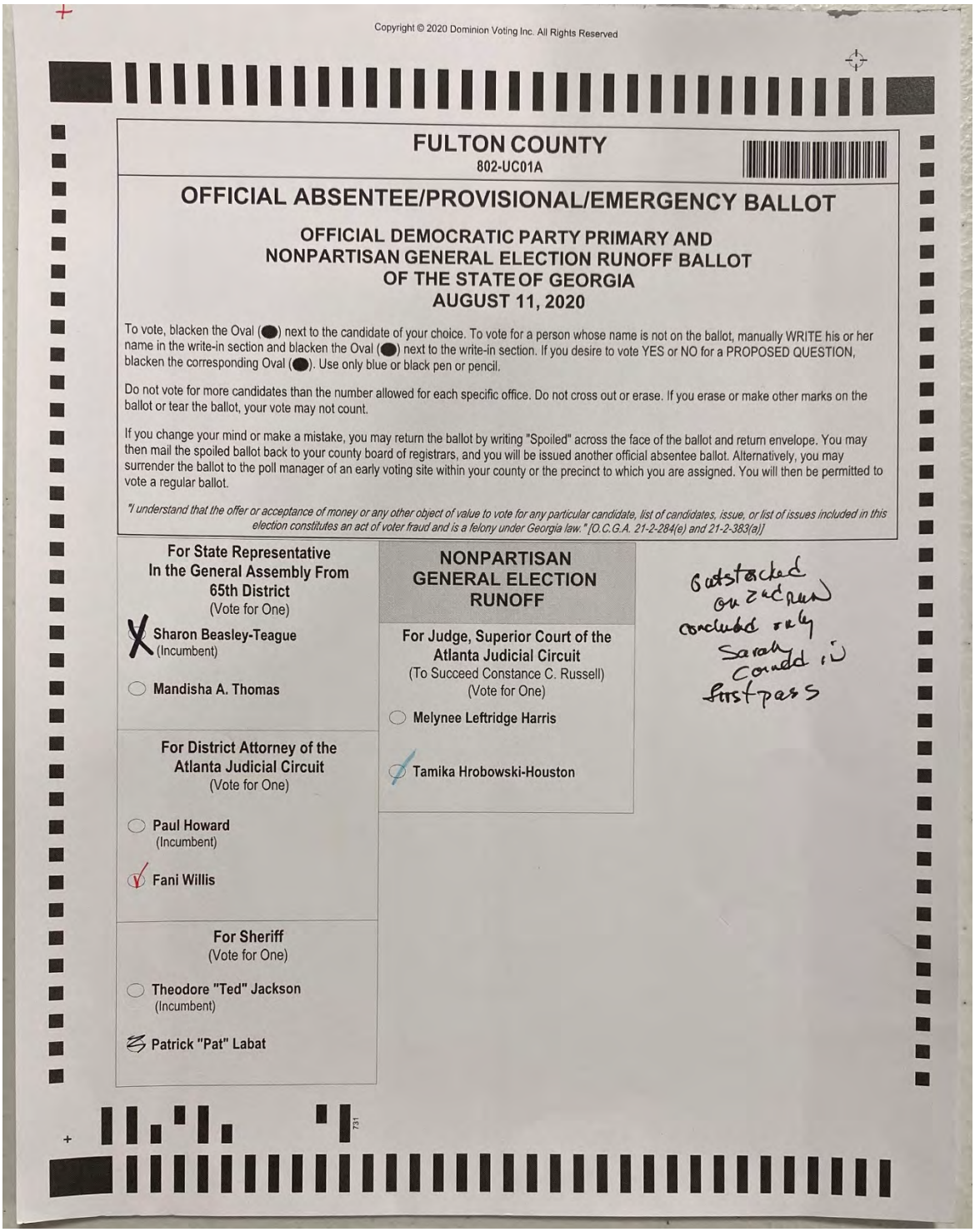
- ✓ Melynee Leftridge Harris
- ◯ Tamika Hrobowski-Houston

For Member, Fulton County School Board District 4
(Vote for One)

- ✓ Franchesca Warren
- ◯ Sandra C. Wright

703

EXHIBIT J:



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FULTON COUNTY
802-UC01A

OFFICIAL ABSENTEE/PROVISIONAL/EMERGENCY BALLOT

OFFICIAL DEMOCRATIC PARTY PRIMARY AND
NONPARTISAN GENERAL ELECTION RUNOFF BALLOT
OF THE STATE OF GEORGIA
AUGUST 11, 2020

To vote, blacken the Oval (●) next to the candidate of your choice. To vote for a person whose name is not on the ballot, manually WRITE his or her name in the write-in section and blacken the Oval (●) next to the write-in section. If you desire to vote YES or NO for a PROPOSED QUESTION, blacken the corresponding Oval (●). Use only blue or black pen or pencil.

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If you change your mind or make a mistake, you may return the ballot by writing "Spoiled" across the face of the ballot and return envelope. You may then mail the spoiled ballot back to your county board of registrars, and you will be issued another official absentee ballot. Alternatively, you may surrender the ballot to the poll manager of an early voting site within your county or the precinct to which you are assigned. You will then be permitted to vote a regular ballot.

"I understand that the offer or acceptance of money or any other object of value to vote for any particular candidate, list of candidates, issue, or list of issues included in this election constitutes an act of voter fraud and is a felony under Georgia law." [O.C.G.A. 21-2-284(e) and 21-2-383(a)]

For State Representative In the General Assembly From 65th District
(Vote for One)

- [X] Sharon Beasley-Teague (Incumbent)
- [ ] Mandisha A. Thomas

For District Attorney of the Atlanta Judicial Circuit
(Vote for One)

- [ ] Paul Howard (Incumbent)
- [✓] Fani Willis

For Sheriff
(Vote for One)

- [ ] Theodore "Ted" Jackson (Incumbent)
- [S] Patrick "Pat" Labat

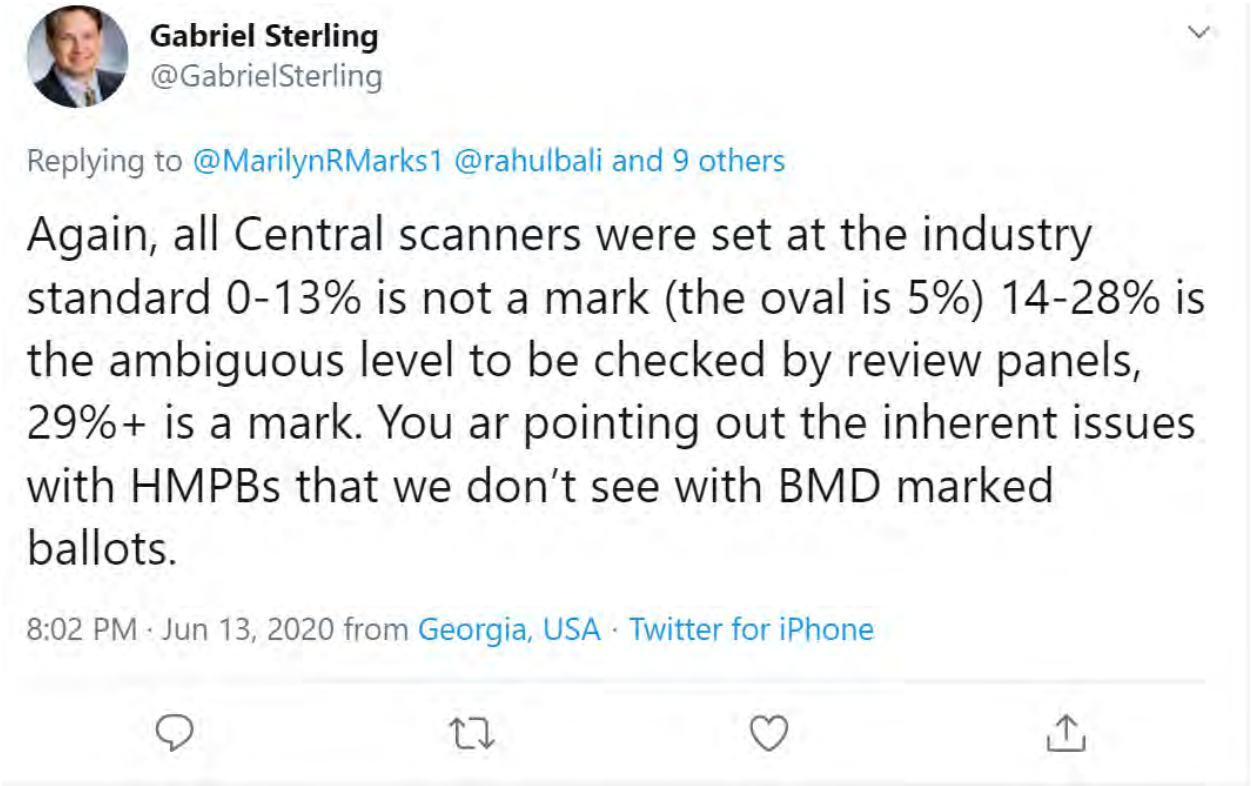
NONPARTISAN GENERAL ELECTION RUNOFF

For Judge, Superior Court of the Atlanta Judicial Circuit
(To Succeed Constance C. Russell)
(Vote for One)

- [ ] Melynee Leftridge Harris
- [✓] Tamika Hrobowski-Houston

Outstacked on 2nd pass concluded only Sarah counted in first pass

EXHIBIT K:



Gabriel Sterling
@GabrielSterling

Replying to @MarilynRMarks1 @rahulbali and 9 others

Again, all Central scanners were set at the industry standard 0-13% is not a mark (the oval is 5%) 14-28% is the ambiguous level to be checked by review panels, 29%+ is a mark. You ar pointing out the inherent issues with HMPBs that we don't see with BMD marked ballots.

8:02 PM · Jun 13, 2020 from Georgia, USA · Twitter for iPhone

EXHIBIT L:

- Create a voter card from Poll Pad for each unique ballot style within the designated Polling Location
  - Recommend labels be placed on card identifying what ballot style will be displayed by BMD once card is inserted
  - BMD removes the activation code from the Voter Card once used, therefore create the card again from Poll Pad after each use by a BMD

D. Testing the BMD and Printer

Use a combination of Poll Worker Card with Ballot Activation Codes for the polling location, and Voter Cards created from a Poll Pad loaded with the LA/Advance Voting dataset to bring up ballots on the BMD

- Produce at least one printed ballot from each BMD assigned to the polling location
- Produce a test deck from the BMDs assigned to the polling location for each unique ballot style within the polling location. The test deck must contain at least one vote for each candidate listed in each race within the unique ballot style
  - **Example**: Ballot from BMD 1 contains a vote for only the first candidate in each race listed on Ballot Style 1, Ballot from BMD 2 contains a vote only for the second candidate in each race on Ballot Style 1, and continue through the line of devices until all candidates in all races within the unique ballot style have received a single vote
  - **If Number of BMDs outnumber the number of vote positions on the unique ballot style**, start the vote pattern over until all BMDs have produced one printed ballot
  - **If Number of unique ballot styles in the polling place is greater than 1,** once the vote pattern is complete for a unique ballot style, proceed to the next BMD in line to start the review of the next unique Ballot Style
  - **All unique ballot styles do not have to be tested on each BMD**
- Review BMD-generated Test Deck and confirm the vote content before placing in the designated Polling Place Scanner

E. Testing the Polling Place Scanner

- Scan the BMD-generated Test Deck into the Polling Place Scanner
- Scan one blank optical scan ballot style(s) associated to the Polling Place to verify the Polling Place Scanner will recognize the ballot style in case of emergency
- Verify Scanner(s) shows a number of Ballot Cast equal to the number of ballots in the BMD-generated test deck plus the scanned blank Optical Scan ballot styles
- Firmly place the Security Key Tab in the Security Key Slot
- Touch Close Polls
- Enter the passcode
- Touch Enter
- Touch Yes
- Touch No for additional tapes (Scanner will automatically produce 3 copies of the closing tape)

EXHIBIT M:

THE DOMINION DIFFERENCE
DUAL THRESHOLD TECHNOLOGY (MARGINAL MARKS)
From its early beginnings, Dominion Voting has emphasized the use of digital scanning, and continues to set the standard in digital image acquisition and analysis in the tabulation of digitally scanned ballots. When a ballot is fed into an ImageCast® tabulator – at the precinct level or centrally - a complete duplex image is created and then analyzed for tabulation by evaluating the pixel count of a voter mark. The pixel count of each mark is compared with two thresholds (which can be defined through the Election Management System) to determine what constitutes a vote. If a mark falls above the upper threshold, it's a valid vote. If a mark falls below the lower threshold, it will not be counted as a vote.
However, if a mark falls between the two thresholds (known as the "ambiguous zone"), it will be deemed as a marginal mark and the ballot will be returned to the voter for corrective action (please see diagram below). With this feature, the voter is given the ability to determine his or her intent, not an inspection or recount board after the fact, when it is too late. The chart below illustrates the Marginal Mark threshold interpretation.
100%
50%
0%
MARK DENSITY
Counted
Upper Threshold
Marginal
Lower Threshold
Not Counted
Mark #1
Mark #2
Mark #3
Mark #4
THE DOMINION DIFFERENCE
DUAL THRESHOLD TECHNOLOGY
DOMINION VOTING

Exh. 4B

Exhibit 4

From: Samantha Whitley <cgganalyst2@gmail.com>
Sent: Wednesday, October 7, 2020 9:11 AM
To: elections@lowndescounty.com; elections@lumpkincounty.gov; tdean@mcelections.us; Marion County Elections & Registrations <marioncountyelect@gmail.com>; Phyllis Wheeler <Phyllis.Wheeler3@thomson-mcduffie.net>; Doll Gale <egale@darientel.net>; Patty Threadgill <p.threadgill@meriwethercountyga.gov>; Jerry C <registrars@millercountyga.com>; Terry Ross <tross@mitchellcountyga.net>; Kaye Warren <kwarren@monroecoga.org>; rmoxsand@hotmail.com; Jennifer Doran <jdoran@morgancountyga.gov>; vote@murraycountyga.gov; Nancy Boren <nboren@columbusga.org>; Angela Mantle <amantle@co.newton.ga.us>; Fran Leathers <fleathers@oconee.ga.us>; Steve McCannon <smccannon@oglethorpecountyga.gov>; Deidre Holden <deidre.holden@paulding.gov>; Adrienne Ray <adrienne-ray@peachcounty.net>; Julie Roberts <jroberts@pickenscountyga.gov>; Leah Williamson <leah.williamson@piercecountyga.gov>; Sandi Chamblin <schamblin@pikecoga.com>; Lee Ann George <lgeorge@polkga.org>; quit.judge@gqc-ga.org; twhitmire@rabuncounty.ga.gov; Todd Black <rcc.boe@gmail.com>; Lynn Bailey <lbailey@augustaga.gov>; cynthia.welch@rockdalecountyga.gov; Schley Registrars <registrars_schley@yahoo.com>
Subject: Followup - new unsealed documents and response to Harvey bulletin

Providing the Facts—BMD Security Risks and Software Update

The events of the last 11 days have made it clearer than ever that county election officials have the duty to abandon the county-wide use of BMD touchscreen machines and adopt hand marked paper ballots because the BMD units cannot be used securely or legally---certainly making their deployment "impossible," "impractical" or "unusable." [Those are the conditions in the statute and new election rule that call for the superintendent's decision to use hand marked paper ballots.] We offer more facts as your board makes this significant decision.

The 2020 General Election is underway, and last week the Secretary of State ordered election officials across the state to erase the original certified software from 34,000 Ballot Marking Devices and install new software, which was uncertified and untested.

Channel 11 in Atlanta featured the issue tonight. (https://youtu.be/lMJU2p4_LDM) We are aware that several other reporters are trying to get answers as well, without success.

Yesterday the Court unsealed critical information about the voting system changes, which is important for election officials to read. Meantime, the State is pressuring county officials to comply with their instructions, without considering the consequences.

On Monday Chris Harvey issued a bulletin titled***, "Be Wary of False and Misleading Information re: ICX Update"***

The extra capitalization probably tipped you off to be wary of what was to follow.

If you've read many of the Court documents in our Curling v. Raffensperger case, you'll be familiar with the pattern: Coalition for Good Governance presents testimony from the nation's most respected expert witnesses, evidence, science, law, and facts. State responds with hyperbole and unsubstantiated claims, and sometimes name-calling.

The State is attempting to force you into a difficult choice –to follow their orders, and trust that nothing goes wrong, or to use your authority do follow what the statutes and election rules require, risking retribution from the State Election Board. It comes down to this - use the un-auditable BMDs with altered software, or use ballots marked by pen for in-person voting.

The experts confirm that installing hastily written software on the eve of in-person voting is akin to redesigning an aspect of an airplane as it is about to take off.

Here's what's wrong with assertions made in the Monday's Bulletin from Chris Harvey:

Fact: EAC certification requires pre-approval of de minimis changes before they are implemented. The vendor declaring software error-correcting changes "de minimis" does not make it so. When you received the new software on Sept 30, with, instructions to immediately wipe your BMDs clean and install it, the test lab had NOT issued its report (dated Oct 2) and Dominion had not submitted the proposed "de minimis" change to the EAC. We can find no evidence that the proposed change has been submitted to the EAC for certification, despite the Secretary's commitment to the Court that it had been done.

Fact: the lab that tested the software change did not test to be sure it did not “cause any other issues with the operation of the ICX.”

Fact: When you were asked to install the software on 9/30, the updated version of the ICX touchscreen software (version 5.5.10.32) was NOT certified by the Secretary of State. It was technically certified (but without conducting the mandated prerequisite tests) yesterday, October 5. This is risk for your voters and their candidates that the county boards simply cannot tolerate.

Fact: The Secretary made no mention that state law requires counties to conduct acceptance testing after installing modified software, and before installing the November programming and conducting LAT, leaving the counties to deal with the consequences of the failure to do so.

With regards to the shocking assertion that the Secretary of State helped draft an intended loophole in the law to make required EAC system certification meaningless – it boggles the imagination. He claims that while the General Assembly ordered that only EAC software be purchased, he can change it behind closed doors to do whatever he wants. The Secretary is shamelessly defending his “election security be damned” policies, despite the his disingenuous “Secure the Vote” logo.

Don’t take our word for any of this. The transcript of the October 1 court conference was just unsealed, along with new declarations from experts Alex Halderman, Kevin Skoglund, and Harri Hursti, plus the Pro V&V test lab letter. We attached them for you to read the grave concerns of the nationally respected experts along with the transcript from the sealed proceedings. The State has been unable to engage experts who support their use of BMDs or this software. Instead they only have (often inaccurate) testimony from vendors.

The SOS wants you to bet your voters’ ballots, and your counties’ candidates’ campaigns, on the high-risk notion that the software change solves the original problem, with no unintended consequences, including the introduction of more errors or malware. Also he wants you to bet that losing candidates won’t challenge the election on the basis of the host of BMD risks, problems and legal non-compliance from ballot secrecy to failing software that may well hide its defects.

The experts are clear: if you use the altered BMDs, your elections will not be defensible.

The only sound choice is to draw a line in the sand and strictly comply with the law. The law holds the County Superintendent responsible for the conduct of elections. And when things go wrong, and the lawsuits come, the Secretary of State ***will*** blame the counties.

The November 2020 election is consequential. All eyes are on election administrators. And on Georgia. We urge you to put voters first, set aside the problematic BMDs, and use ballots marked by pen for in-person voting as authorized by O.C.G.A 21-2-281 and SEB Rule 183-1-12-.11(2)(c)-(d)—the only legal path before you for conducting an accountable and constitutionally compliant election.

As always, we are happy to hear from you to discuss this further.

Marilyn Marks

Executive Director

Coalition for Good Governance

Marilyn@USCGG.org

704 292 9802

--

Samantha Whitley

Research Analyst

Coalition for Good Governance

Cell: 704 763 8106

cgganalyst2@gmail.com

Exhibit A

OFFICIAL ELECTION BULLETIN

October 5, 2020

TO: **County Election Officials and County Registrars**

FROM: **Chris Harvey, Elections Division Director**

RE: **Be Wary of False and Misleading Information re: ICX Update**

You may have received correspondence today from activists for hand-marked paper ballots and their attorney. These activists have been suing the state and Georgia counties for years because they disagree with the decision of the Georgia General Assembly to use electronic ballot-marking devices instead of hand-marked paper ballots. Because their preferred policy was not enacted, they have tried to force their preferred policy on the state through litigation. The latest correspondence makes false and misleading allegations regarding the recent update to the ICX (touchscreen) component of Georgia's voting system.

As you know, an issue was discovered during Logic and Accuracy testing that, in certain rare circumstances, caused the second column of candidates in the U.S. Senate Special Election to not correctly display on the touchscreen. The issue was caught prior to any in-person voting due to excellent L&A testing by county election officials. Soon after the issue was brought to our attention, Dominion diagnosed the issue and began to work on a solution.

Dominion's solution required a *de minimis* software update to the touchscreen. That update was tested at Dominion, tested again at the state's EAC-certified test lab, and tested again at the Center for Election Systems to determine that it resolved the display issue and did not cause any other issues with the operation of the ICX. The state only distributed the update after verifying the test results with the EAC-certified test lab and acceptance testing the update at CES prior to distribution to counties. This is the normal process to follow for a state certification update. The updated version of the ICX touchscreen software (Version 5.5.10.32) has been certified by the Secretary of State as safe for use in Georgia's elections. You should continue to install the update as instructed

by CES. You should also confirm both the confidential hash value and the version number on each ICX BMD touchscreen during L&A testing.

The correspondence you may have received today also misstates Georgia law when it says that the update has to first be certified by the EAC. Georgia law required the *initial* system procured to be EAC certified, but it does not require that all updates first be certified by the EAC. The law was drafted that way intentionally, with input from our office, to ensure that the state did not have to wait on the EAC when important updates were needed.[1] Even with these provisions of Georgia law, Dominion advises that it has already submitted the update to the EAC for approval as a *de minimis* change, as recommended by the EAC-certified test lab.

Thank you to the counties whose diligent L&A testing allowed this issue to be identified and resolved quickly. And thank you to all county election officials for your continued hard work in this difficult year for election administration.

[1] You probably remember that the EAC was without a quorum for two years, and therefore unable to take any action.

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

DONNA CURLING, ET AL., **Plaintiffs,** **v.** **BRAD RAFFENSPERGER, ET AL.,** **Defendants.**	**DECLARATION OF** **J. ALEX HALDERMAN** **Civil Action No. 1:17-CV-2989-AT**

Pursuant to 28 U.S.C. § 1746, J. ALEX HALDERMAN declares under penalty of perjury that the following is true and correct:

1. I hereby incorporate my previous declarations as if fully stated herein. I have personal knowledge of the facts in this declaration and, if called to testify as a witness, I would testify under oath to these facts.

2. I have reviewed the "Letter Report" prepared by Pro V&V concerning version 5.5.10.32 of the Dominion BMD software (Dkt. No. 939). The report makes clear that Pro V&V performed only cursory testing of this new software. The company did not attempt to independently verify the cause of the ballot display problem, nor did it adequately verify that the changes are an effective solution. Pro

V&V also appears to have made no effort to test whether the changes create new problems that impact the reliability, accuracy, or security of the BMD system.

3. This superficial testing is deeply concerning, because Pro V&V's characterization of the source code changes indicates that they are considerably more complicated than what Dr. Coomer previously testified was the threshold for considering a change to be "de minimis": "literally a one-line configuration change in some config file that would have no material impact on the system" (Dkt. No. 905 at 102:18-103:14). Instead, Pro V&V states that Dominion made two kinds of changes and modified lines in five different source code files. In general, changes that affect more lines of source code or more source code files are riskier than smaller change, as there is a greater likelihood that they will have unintended side-effects. Changes to source code files, as Dominion made here, also tend to be riskier than changes to "config[uration] files."

4. The nature of the changes gives me further reason for concern. According to Pro V&V, one change involved changing a "variable declaration" to modify the "type" of a variable. A variable's type determines both what kind of data it holds and how operations on it function. Although changing a variable declaration often involves differences in only one line of source code, the effect is a change to how the program operates everywhere the variable is used, which could involve

many parts of the source code and span multiple files. For this reason, changing a variable's type frequently introduces new bugs that are difficult to detect. I have often experienced such problems while writing software myself.

5. It is not possible to evaluate the effects of such a change by analyzing only the lines of source code that have been modified. Yet Pro V&V's description of its "source code review" is consistent with having done nothing more. The company could have engaged an expert in the specific programming language to analyze the quality of the changes and look for subtle side-effects throughout the code, but it appears that they did not.

6. Instead, the report states that "Pro V&V conducted functional regression testing." Regression testing has a well-defined meaning in computer science: checking that a change to a system does not break its existing functionality. After a change to a voting system like this, rigorous regression testing is essential for ensuring that the system's reliability, accuracy, and security are not degraded. Yet the testing Pro V&V describes performing is not regression testing at all. Instead, the company focused entirely on checking whether the ballot display problem was fixed and makes no mention of testing any other functionality whatsoever.

7. Even for this limited purpose, Pro V&V's testing methodology is inadequate. They first tried to observe the error while using the current version of the BMD software, 5.5.10.30. They managed to trigger it using an artificial test ballot but failed to reproduce it using the real ballot design from Douglas County (where the problem was observed during L&A testing) even after 400 attempts.[1] They then performed the same checks using the 5.5.10.32 software. Pro V&V's basis for concluding that the new software corrects the problem is that they were unable to trigger the error with either ballot after 400 tries. Yet this ignores the obvious possibility that the error might simply be eluding them, as it did with the Douglas County ballot under version 5.5.10.30.

8. That is the full extent of the testing described in Pro V&V's report. They did not test that the other functionalities of the machine are not impacted by the change. They did not test that the BMD selected and printed results accurately, nor did they test that security was unaffected. Tests only answer the questions you ask. Here—regardless of what Pro V&V intended—the only questions asked were: "Is the stated error observed when using the old software?" and "Is the stated error observed when using the new software?" They did not ask, "Is Dominion correct

[1] It is curious that Pro V&V was unable to reproduce the problem experienced in Douglas County, but they appear not to have made any effort to investigate this.

about the cause of the problem?" They did not ask, "Does this change absolutely and completely fix the issue?" Most importantly, they never asked or answered the key question for determining whether the change is de minimis, "Will these modifications have any impact on the rest of the voting system's functionality?"

9. Even if the change does correct the bug without introducing new problems, it still represents a significant security risk, because of the possibility that attackers could hijack the replacement software to spread malware to Georgia's BMDs.

10. Defendants say they will guard against this using hash comparisons, but the hash comparison process they have described is inadequate in several ways.[2] As I have previously explained, examining the hash that the BMD displays on screen provides no security, because malware on the BMD could be programmed to calculate and display the expected hash. Although the State now says it will perform some acceptance testing at a central facility, such testing has limited value at best. Even if performed correctly—by securely computing the hash of the software using a device that is assuredly not affected by malware—acceptance testing can only

[2] The Pro V&V report lists the hash of a file named ICX.iso, which presumably contains the APK as well as other files. Without access to the ICX.iso file, I cannot confirm whether that the software purportedly being installed on the BMDs is the same as the software Pro V&V built and tested.

confirm that the new software was not modified between Pro V&V and the test facility. It does not ensure that the new software actually matches Dominion's source code or that it will not be modified during later distribution to counties or installation on the tens of thousands of BMDs statewide.

11. The report mentions that Pro V&V performed a "trusted build" of the new software. This refers to the process by which Pro V&V compiled the source code to produce the APK file for distribution and installation throughout Georgia. The result of compiling source code, often called a software "binary," is in a non-human readable format, and it is not possible in general to confirm that a binary faithfully matches source code from which it was purportedly compiled. As a result, if Pro V&V were to modify the BMD software to introduce malicious functionality—or if attackers who infiltrated their systems were to do so[3]—there

[3] Notably, Pro V&V's website (http://www.provandv.com/) does not support HTTPS encryption, and modern web browsers warn users that it is not secure, as shown below. In my experience, organizations that fail to support HTTPS are likely to be ignoring other security best practices too, which increases the likelihood of attackers successfully infiltrating their systems.

would be no readily available way for the State or Dominion to detect the change. The State's election security experts themselves have emphasized the risk of election manipulation by so-called "insiders."

12. Defendants state that Pro V&V has submitted the report to the EAC to seek approval for a de minimis change. The EAC's de minimis software change process was introduced less than a year ago, and, as far as I am aware, it has only been invoked on one or two occasions so far. In my opinion, the EAC cannot make an informed determination as to whether the new Dominion software meets the de minimis standard based on the information contained in Pro V&V's report, and I sincerely hope the agency demands more rigorous testing before allowing the software to be used under its certification guidelines.

I declare under penalty of the perjury laws of the State of Georgia and the United States that the foregoing is true and correct and that this declaration was executed this 3rd day of October, 2020 in Ann Arbor, Michigan.

J. ALEX HALDERMAN

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

DONNA CURLING, et al. **Plaintiff,** **vs.** **BRAD RAFFENSPERGER, et al.** **Defendant.**	**CIVIL ACTION FILE NO.: 1:17-cv-2989-AT**

SUPPLEMENTAL DECLARATION OF KEVIN SKOGLUND

KEVIN SKOGLUND declares, under penalty of perjury, pursuant to 28 U.S.C. § 1746, that the following is true and correct:

1. I hereby incorporate my previous declarations as if fully stated herein. I have personal knowledge of all facts stated in this declaration, and if called to testify, I could and would testify competently thereto.
2. I have read the Letter Report regarding "Dominion Voting Systems ICX Version 5.5.10.32" from Pro V&V to Michael Barnes dated October 2, 2020 ("Letter Report").
3. The Letter Report describes Pro V&V's evaluation of a proposed code change by Dominion to address a flaw in the current ICX software related to reliably displaying two columns of candidates.

4. Pro V&V's evaluation is inadequate to verify Dominion's opinion of the root cause of the error, Dominion's proposed fix for the error, or whether the nature of the proposed change is considered "de minimis" as defined by the U.S. Election Assistance Commission ("EAC").

High Impact Changes

5. The Letter Report describes changes that are potentially high impact.
6. I expected the change to be limited to one or two lines in a configuration file based its description in the hearings. A configuration file change would provide a new value for the existing code to use.
7. The impact of changing a value being *used* by code is far less than the impact of changing the code *itself*, in the same way that changing the furniture in a house has less impact than moving walls. The value may be different but it will travel the same pathways through the code during operation. The structure and governing rules are unchanged.
8. Instead, the Letter Report describes two sets of changes to the source code *itself* in a total of five files. It does not quantify the number of lines changed, but it must be at least five. These are not merely configuration changes. Variable and function definitions in the source code are changed.

9. The changes described may sound minor, for example changing a variable from an integer (e.g., 123) to a string (e.g., "123"), but I would give them no less consideration. I have broken plenty of code making similar changes.

10. One reason is that any code elsewhere in the program that uses a changed variable or function could be impacted. Another part of the code may act correctly when given 123 but act incorrectly when given "123". The first can have numbers added and subtracted, while the second can be searched for a specific character, but the reverse is often not true.

11. The Letter Report describes a source code review limited to the changed lines of source code. The code comparison performed is similar to reviewing the changed text in a legal blackline. It does not appear that Pro V&V looked throughout the source code for other interactions which could prove problematic.

12. The Letter Report states that Dominion believes the problem is a collision of resource identifiers between their software and the underlying operating system. I think it's a fair analogy to say that Dominion's software and the operating system sometimes try to park in the same parking space.

13. In my experience, an abundance of caution is necessary when the operating system and software running on it are working in a shared

space and not playing well together. A misstep could create additional problems in their interactions and any change should be carefully considered and well tested.

14. The Letter Report does not describe any review of the proposed software's interaction with the operating system. It does not mention the involvement of any expert on the operating system or an opinion regarding colliding resource identifiers—the reported cause and the target of the resolution. This is a concerning oversight.

Inadequate Testing of the Root Cause of the Error

15. Pro V&V was unable to reliably reproduce the error with the current version of the software, ICX 5.5.10.30. In fact, they reported producing the error only once out of 810 total attempts.

16. Pro V&V appears to have taken Dominion's word for the root cause of the error. The Letter Report does not mention any independent investigation to determine the cause.

17. The description of Pro V&V's first test, using a sample election database, begins with a procedure likely suggested by Dominion—toggling between font sizes to trigger the error. When the 10th toggle produced the error, Pro V&V considered the root cause to be confirmed. That is in itself not unreasonable.

18. However, the same test procedure was later performed using an actual election database, from Douglas County where logic and accuracy testing had revealed the error previously, and 400 toggles and several reboots could not produce the error. Of two test cases that should have both failed, one failed and one did not.

19. Despite these conflicting test results, Pro V&V did not investigate further. They did not consider what might be different between these two test cases to cause contradictory results. They did not consider if the sample election database at the center of their tests was a poor substitute for a real database. They did not consider that the root cause could be different, or that toggling the font size might not be a good trigger for the error.

20. Pro V&V wrote the Letter Report without having confirmed that Dominion's opinion of the root cause was correct.

Inadequate Testing of the Proposed Fix for the Error

21. It is impossible to verify that a proposed change sufficiently addresses an error if the root cause is unconfirmed. A change may only appear to fix the error due to coincidence. Correlation is not causation. A change may incompletely fix the error or create subtle side effects.

22. I have learned this lesson many times while fixing software bugs during my 23 years as a programmer, and I teach that lesson in a course on

software testing. I have also had the practical experience of taking a car to the auto mechanic over and over as they try different solutions for an uncertain cause.

23. Pro V&V's basis for determining that the error was fully resolved by the proposed change, ICX 5.5.10.32, was that the error was not observed after 400 toggles and several reboots.

24. This is not an ideal test case because "absence of evidence is not evidence of absence." The conclusion requires an assumption that subsequent attempts would not surface the error. Given that the first test required only 10 toggles to trigger the error, after 400 toggles and several reboots I might have made a similar assumption.

25. However, when Pro V&V performed the subsequent test on the Douglas County database and also could not observe the anticipated error after 400 toggles and several reboots, they did not revisit their conclusion about ICX 5.5.10.32. They should have.

26. They did not consider that the error could be eluding them in ICX 5.5.10.32 as it was with ICX 5.5.10.30 using Douglas County's database. They did not consider that their assumption that 400 toggles was enough to surface the error was wrong. They did not consider that the proposed change might be an insufficient remedy for the problem.

27. To be clear, I am not suggesting that Dominion's opinion of the root cause is incorrect or that Dominion's proposed change does not fix it. I am saying that testing was insufficient to verify either one. Pro V&V showed no skepticism about their findings when the results created a logical fallacy.

28. Even more surprising, Pro V&V had a real election database from Douglas County in hand, yet they did not test it with ICX 5.5.10.32. The stated purpose of this eleventh-hour software change was to resolve this error for the current election database, rather than create and distribute a new one. The test lab hired to confirm that the new software will work with the current database in a matter of days did not even check.

29. Pro V&V wrote the Letter Report without having confirmed that Dominion's proposed fixed correctly addressed the error, neither on the sample election database nor on the election county database counties are planning to use.

Inadequate Testing of "De Minimis"

30. The EAC defines a de minimis change as:

> A de minimis change is a change to a certified voting system's hardware, software, TDP, or data, the nature of which will not materially alter the system's reliability, functionality, capability, or

operation. Under no circumstances shall a change be considered de minimis if it has reasonable and identifiable potential to impact the system's performance and compliance with the applicable voting Standard.[1]

31. The Letter Report does not describe any testing to demonstrate that the nature of the proposed change does not "materially alter the system's reliability, functionality, capability, or operation" and does not have a "reasonable and identifiable potential to impact the system's performance and compliance with the applicable voting Standard."

32. Pro V&V ignored these critical, foundational requirements in their testing.

33. Pro V&V did not test whether *any* other functionalities of the device are impacted. They did not test whether the new build of the software correctly selects candidates in a series of contests and accurately prints them on a ballot. They did not test other screens to ensure that a fix to the two-column layout did not break another. They did not check if it was still possible to change languages or screen contrast, or whether the audio ballot, used by voters with disabilities, was still working. They did not test whether the device's security was impacted.

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[1] "Testing and Certification Program Manual," Section 3.4.2, available at: https://www.eac.gov/sites/default/files/eac_assets/1/6/Cert_Manual_7_8_15_FINAL.pdf

34. Pro V&V did not answer the litmus test for de minimis. Does the change materially alter the system's reliability, functionality, capability, or operation?

35. The Letter Report describes "functional regression testing," which might help answer this question, but it misuses the term.

36. Regression testing is a "re-running functional and non-functional tests to ensure that previously developed and tested software still performs after a change."[2] It is so named because a regression is a step backwards in the development of software, the proverbial "two steps forward, one step back."

37. Pro V&V examined the rendering of the two-column layout in their tests. Regression testing would validate that *other* parts of the software still perform correctly.

38. Regardless of Pro V&V's determination, this change is not a de minimis change until the EAC reviews it and approves in writing. "The EAC has sole authority to determine whether any VSTL endorsed change constitutes a de minimis change under this section. The EAC will inform the Manufacturer and VSTL of its determination in writing."[3]

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[2] "Regression Testing", Wikipedia, available at https://en.wikipedia.org/wiki/Regression_testing

[3] "Testing and Certification Program Manual," Section 3.4.3

39. The EAC prohibited *any* software changes to be considered de minimis until recently out of concern that even small changes might alter the system functionality, due to potential ripple effects I described earlier.

40. Given that the process is new, I expect that the EAC will scrutinize any request for a software de minimis change carefully. I expect the EAC to ask for more rigorous testing and reporting than the Letter Report.

Concerns about the Time Remaining for Review and Testing

41. In my previous declaration I expressed concern about a software change at this late date and fear that time pressures may result in less thorough review and testing of the proposed change.

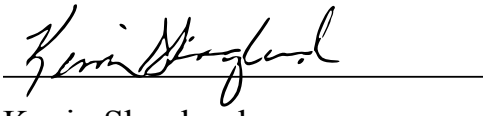
42. The Letter Report is a wholly inadequate review. Its tests are incomplete.

43. The EAC has not yet begun to review this proposed software change. Using the revised software without the EAC's approval will void the federal certification. EAC approval must be granted in the next five business days to allow early voting to commence on the following Monday.

44. Yet the uncertified software has been distributed and counties have been instructed to install it on over 30,000 ImageCast X devices and to begin testing them.

45. Last week, I heard Michael Barnes describe the current procedures for logic and accuracy testing. The procedures do not test every device, for every ballot style, for every candidate. The procedures do not include any additional testing related to this error. This problem and others could pass through logic and accuracy testing undetected.

Executed on this date, October 4, 2020.



Kevin Skoglund

DECLARATION OF HARRI HURSTI

Pursuant to 28 U.S.C. § 1746, HARRI HURSTI declares under penalty of perjury that the following is true and correct:

1. This declaration supplements my prior declarations (Docs. 680-1, 800-2, 809-3, 860-1, 877, and 923-2) a nd I stand by the statements in those declarations.

2. I arrived at the Fulton County Election Preparation Center ("EPC") on October 1, 2020 around 3:45pm. I was there in my capacity as an expert engaged by the Coalition Plaintiffs to conduct a Rule 34 inspection. (Exhibit 1) . I was accompanied during part of my visit by Marilyn Marks of Coalition for Good Governance.

3. My goal for this observation and inspection was to review the ongoing updating of the Dominion software for Fulton County ballot marking device ("BMD") touchscreen units to ICX software version 5.5.10.32. It is my understanding that Fulton has an inventory of over 3,300 BMD touchscreens, all of which are to be updated with this software. A number of the machines were in the EPC warehouse and were staged to be updated or marked after the update had been completed.

4. Upon our arrival, Ms. Marks and I were informed by Derrick Gilstrap, the manager of EPC, that all of the people working to upgrade the devices were

Dominion technicians. Mr. Gilstrap stated that he did not feel comfortable installing a last-minute software change, and did not want Fulton County staff to be responsible for installing it. He told us that he told Dominion to conduct this operation, prior to having his staff install the November 2020 election programming and Logic and Accuracy testing ("LAT").

5. Mr. Gilstrap told us that after the software update step that LAT would immediately begin, and made no mention of Acceptance Testing that should occur prior to LAT.

6. Acceptance Testing is an almost universally mandated basic test of the hardware and software when a change or repair to either has been made before counties are permitted to install election programming and deploy voting system components. Acceptance testing must be performed on each unit, and cannot be performed on a sample basis. Fulton's failure to conduct such testing should be a serious warning sign of further recklessness in the installation of inadequately tested software.

7. Mr. Gilstrap stated that Dominion had started the software update project with four workers, but soon realized that the task would take extended periods of time. Mr. Gilstrap stated that Dominion had accordingly increased the workforce to 14 and expected the installation work to be completed on Monday, October 5.

8. The new software was contained on USB sticks. However, there was no inventory management present for the USB sticks. There also was no inventory control for the technician authorization smartcards, which provide access to the controls of the touchscreen. Workers did not sign or otherwise document when they took possession or returned the technician cards and software upgrade USB sticks. Those items were in an open plastic bag which was sometimes placed on table, and sometimes carried around the working area by the manager. Anyone was able to pick up a USB stick or drop them there freely, permitting the easy substitution of USB sticks containing malware or to leave the premises with copies of the software update.

9. Some workers worked one BMD touchscreen machine at the time, while others simultaneously worked on 2 or 3 machines. There was no accountability for how many sticks and technician smart-cards each worker had in their possession. Clearly, the USB sticks were not considered to be security sensitive items at all.

10. Some of the workers had instructions for software update visible in their pockets, while others did not seem to have the instructions readily available. One worker showed me the instructions, but it was different from the instructions I had seen that were sent to the counties. None of the technicians that I observed were following the instructions as they installed the new software.

11. Technicians were not following a common process, and they all made their own variations on the workflow. In my experience, this can negatively affect the quality and reliability of the software installation. Many workers were texting and making phone calls while working and not focusing on their work. As a result, I observed repeated human errors such as skipping steps of the process.

12. Some workers consistently took an extra step to destroy previous application data before uninstalling the old version of the software. Uninstalling software packages results in destroying application data, but that is known to be unreliable in old versions of Android. The step they took is ensuring, among other things, destruction of forensic evidence of Fulton's use of the equipment in prior elections.

13. To avoid destruction of all forensic evidence from the BMDs, a number of images of the electronic data contained on the BMDs should be taken from a sample of them before installation of the new software.

14. As part of the updating process, the workers are directed to enable the "Install from Unknown Sources" setting. This is an insecure mode because it turns off the operating system verification of trusted sources and therefore allows software from any source to be installed. During the 45 minutes of my observation, I observed that many units had been left in insecure mode. I estimate 15% of the units were already in the insecure mode when the work began on them, having

been left that way during the last software installations, or because of interim tampering.

15. As described before, most workers I observed were not focusing on the work they were tasked to do, and as result, they were accidentally skipping steps. I observed that, as result of these human errors, the units were erroneously left in the insecure mode either by the workers skipping the step to place the machine into the secure mode after upgrade, or doing the step at such a fast pace that the system did not register the touch to toggle the switch and the worker did not stop to verify the action.

16. The State Defendants and Dominion have repeatedly overstated the value of their hash test, but my observation showed that they themselves are not relying on such test as a control measure. Dominion workers are not even checking the hash value. I deliberately followed many workers when they processed the units. During over 45 minutes of observation, none of the workers took the step of verifying the hash value. Some workers did not realize that the upgrade had failed and the mistake was only caught by persons who were closing the cabinets when and if they looked at the software version numbers before closing the doors.

17. I also observed random errors that were not caused by humans. For example, software sometimes refused to uninstall because the uninstall button was

disabled, or the installation silently failed. The technicians treated devices with issues by simply rebooting them. Technicians made no effort to diagnose or document the cause of the issues. The casual nature of dealing with the irregularities caused me to conclude that these abnormal incidents are commonplace.

18. Based on my observations of the software update, I would anticipate that these machines are likely to behave inconsistently in the polling place, depending on a number of factors including the care taken in the software installation process.

19. The current abbreviated LAT protocol adopted by Fulton County and the State cannot be relied on to identify problems created by the new software or its installation (or other problems with programming and configuration unrelated to the new software). Even if counties were conducting the full LAT required, it is but one step that is needed, and is quite insufficient for ensuring the reliability of the BMD touchscreens—which at the end of the day, simply cannot be done.

20. In my professional opinion, the methods and processes of adopting and installing this software change is completely unacceptable. The methods and processes adopted by Dominion and Fulton County do not meet national standards for managing voting system technical problems and remedies, and should not be accepted for use in a public election under any circumstances.

21. It is important that full details of the software change made be available for analysis and testing to determine the potential impact of the changes. I concur with Dr. Halderman's opinion in Paragraph 8 of his September 28, 2020 declaration (Doc. 923-1), in which he states that if the problem is as limited as described by Dominion, it could have been addressed with far less risk by the State without making an uncertified, untested software change.

22. In my opinion, the installation of the last-minute software change adds intolerable risk to the upcoming election, and the simple solution of removing the BMD units from the process and adopting hand marked paper ballots is imperative.

23. I note that I wanted to document the upgrading process, but Mr. Gilstrap told me that I was prohibited from taking photographs or video. I showed him the Rule 34 inspection document and pointed out the paragraph permitting photographing. He read that carefully but told me that he needed to clear that with his superiors before I could start taking pictures. He never cleared this with his superiors while we were there.

I declare under penalty of the perjury laws of the State of Georgia and the United States that the foregoing is true and correct and that this declaration was executed this 4th day of October, 2020 in Atlanta, Georgia.

Harri Hursti

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

DONNA CURLING, *et al.* *Plaintiffs*, v. BRAD RAFFENSPERGER, *et al.*, *Defendants*.	CIVIL ACTION FILE NO. 1:17-cv-2989-AT

STATE DEFENDANTS' NOTICE OF FILING
REDACTED VOTING SYSTEM TEST LABORATORY REPORT

Pursuant to the Court's September 30, 2020 docket entry, and as discussed in Defendants' Notice of Filing Regarding the Court's Request for Documentation, [Doc. 929], State Defendants provide notice of filing a redacted copy of the Voting System Test Laboratory Report, attached hereto as **Exhibit 1.**

Respectfully submitted this 5th day of October 2020,

/s/ Carey Miller
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Counsel for State Defendants

CERTIFICATE OF COMPLIANCE

Pursuant to L.R. 7.1(D), the undersigned hereby certifies that the foregoing **STATE DEFENDANTS' NOTICE OF FILING REDACTED VOTING SYSTEM TEST LABORATORY REPORT** has been prepared in Century Schoolbook 13, a font and type selection approved by the Court in L.R. 5.1(B).

/s/ Carey Miller
Carey Miller

Exhibit 1

Letter Report

To: Michael Barnes

From: Wendy Owens - Pro V&V, Inc.

CC: Jack Cobb - Pro V&V, Inc.

Date: October 02, 2020

Subject: Dominion Voting Systems ICX Version 5.5.10.32

Dear Mr. Barnes:

Pro V&V is providing this letter to report the results of the evaluation effort on the ICX version 5.5.10.32. An examination was performed to confirm that this version of the ICX software corrected the issue with displaying of two column contests found in ICX version 5.5.10.30.

Background

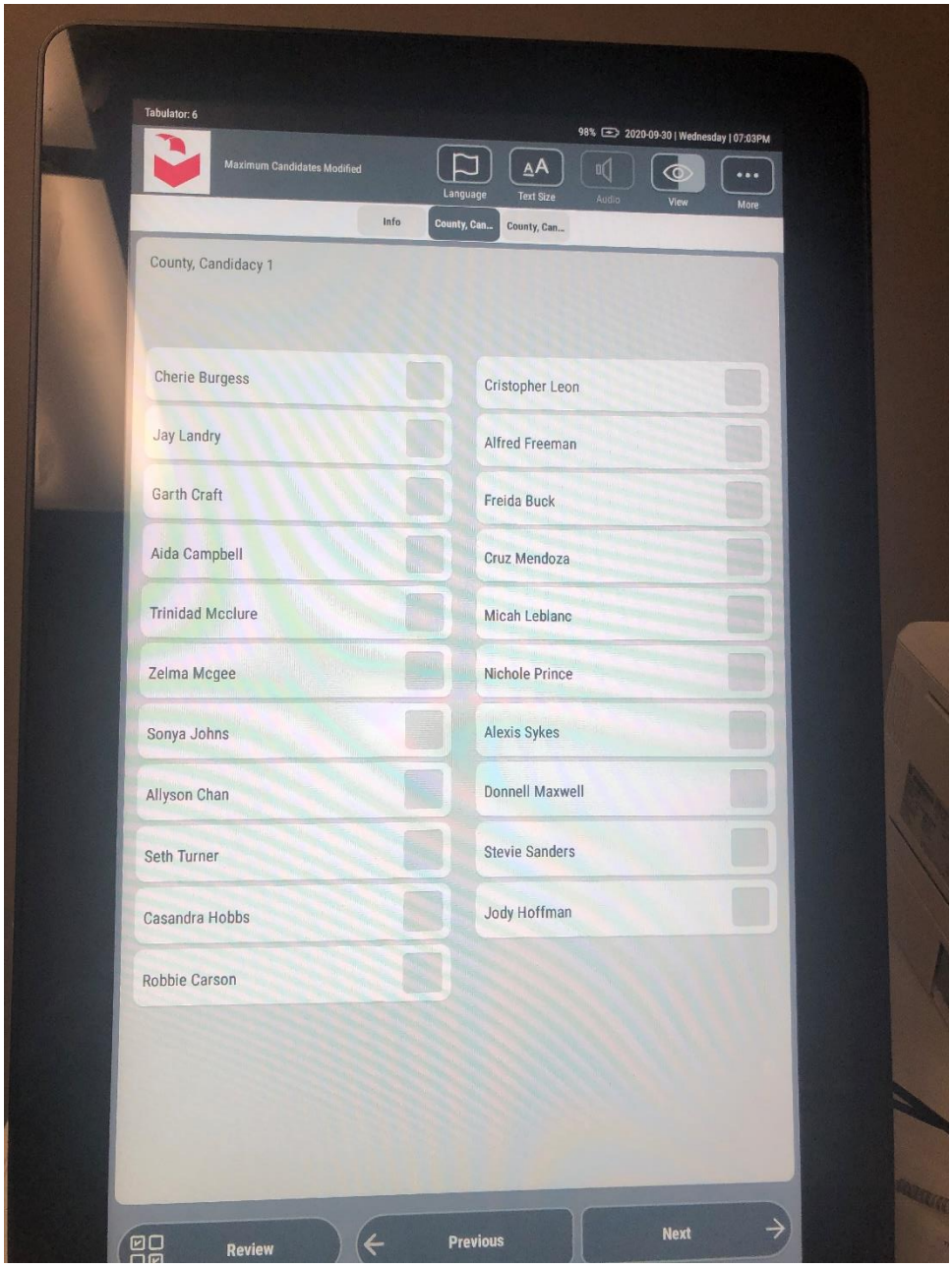
Pro V&V was contacted by Georgia Secretary of State Office and Dominion Voting System to analyze an issue that was discovered in Georgia's Election Logic and Accuracy Testing (L&A testing) for the 2020 General Election. It was discovered during L&A testing that a display error, under certain conditions, would occur where the second column of candidates would not be displayed properly. Dominion Voting Systems researched the issue and found that a static container identifier was causing a collision with an Android automated process for assigning container identifiers. This collision caused the display for the second column candidates not to be rendered on the screen properly and occurred so infrequently that it appeared intermittent.

Test Summary

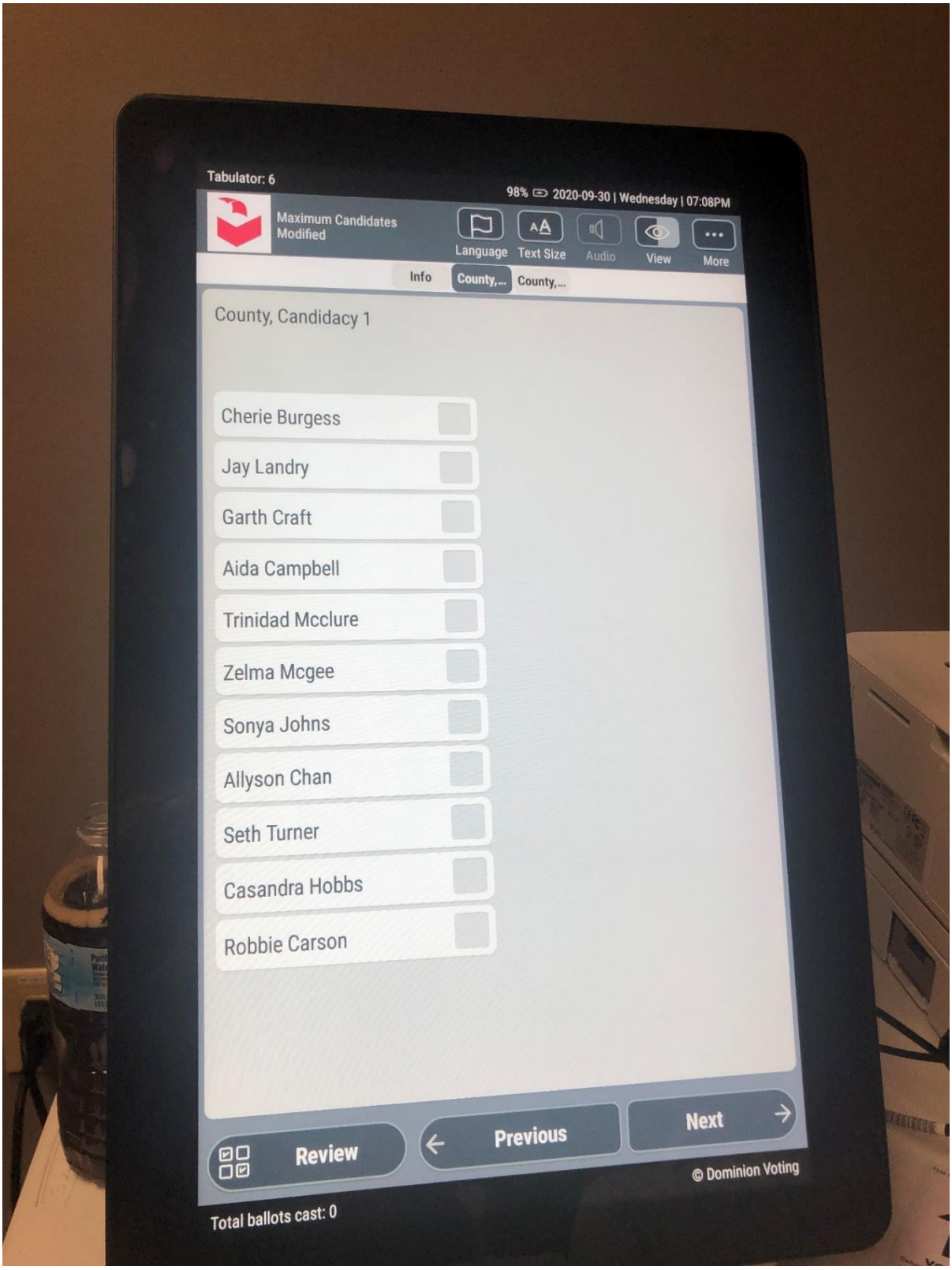
Dominion Voting Systems submitted source code for ICX version 5.5.10.32 to Pro V&V. Pro V&V then conducted a comparative source code review comparing ICX version 5.5.10.32 to the VSTL-provided previous ICX version 5.5.10.30. The source code review found two source code changes in a total of five files. One change was a variable declaration change the variable type to a string from an integer and changing the assignment from a static number to assigning another variable. The other update was to change a function call passing a "wrapper tag" instead of a "wrapper ID". All other source code remained constant. After conducting the source code review, a Trusted Build process was conducted. The Product from this build is the ICX.iso file. The SHA-256 hash for this file is as follows:

ICX.iso - [redacted]

Pro V&V conducted functional regression testing using version 5.5.10.30 and 5.5.10.32. An ICX machine was loaded with 5.5.10.30 and an election containing two 2 column contests. Pro V&V toggled between "Normal" and "Big" font sizes. Approximately on the 10th toggle the column disappeared as presented in Photograph 1.and 2 below:



Photograph 1: Max Candidate Election Contest One



Photograph 2: Second column was not rendered.

After reproducing the issue. The same device was load with the ICX version 5.5.10.32 and the same election. Pro V&V toggled 50 times then rebooted, 100 times then rebooted and finally 250 times. Pro V&V never observed the issue.

Pro V&V requested Douglas County Georgia's 2020 General Election database that had produced the issue, but could not reproduce the issue for the ICX software version 5.5.10.30. Even though Pro V&V could not reproduce the issue, Pro V&V ran the same test as the test election toggling 50 times then rebooted, 100 times then rebooted and finally 250 times. Pro V&V never observed the issue.

Conclusion

Based on the review of the source code and nature of the change, Pro V&V recommends the change be deemed as de minimis. Based on the testing performed and the results obtained, it was verified through source code review and functional testing that the issue found in ICX version 5.5.10.30 can not be reproduced in ICX version 5.5.10.32.

Should you require additional information or would like to discuss this matter further, please contact me at 256-713-1111.

Sincerely,

Wendy Owens

Wendy Owens
VSTL Program Manager
wendy.owens@provandv.com

SEALED TRANSCRIPT

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

DONNA CURLING, ET AL.,	:	
	:	
PLAINTIFFS,	:	
vs.	:	DOCKET NUMBER
	:	1:17-CV-2989-AT
BRAD RAFFENSPERGER, ET AL.,	:	
	:	
DEFENDANTS.	:	

TRANSCRIPT OF ZOOM VIDEO CONFERENCE PROCEEDINGS

BEFORE THE HONORABLE AMY TOTENBERG

UNITED STATES DISTRICT JUDGE

OCTOBER 1, 2020

9:08 A.M.

MECHANICAL STENOGRAPHY OF PROCEEDINGS AND COMPUTER-AIDED TRANSCRIPT PRODUCED BY:

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P R O C E E D I N G S

(Atlanta, Fulton County, Georgia; October 1, 2020.)

THE COURT: Good morning. Counsel, would you just check the extra numbers here -- anyone with an extra number here or person here to make sure everyone here is identified with you. I can see what they appear to be.

Mr. Martin, is this everybody that you have let in?

COURTROOM DEPUTY CLERK: Yes, ma'am, this is everybody.

THE COURT: All right. So if -- the two individuals who are just solely appearing by telephone, can you identify yourselves?

MS. RINGER: Phone number ending in 8737 is Cheryl Ringer from Fulton County.

THE COURT: Okay. Very good. That is fine.

And the person whose number ends in 8993, would you identify yourself.

MR. FRONTERA: Your Honor, can you hear me? This is Mike Frontera, general counsel, with Dominion Voting Systems.

THE COURT: Very good. Thank you very much. All right. That is fine. Everyone is authorized to be on.

Thank you, everyone, for being here. I want to say from the start that we have this now on the platform -- a different Zoom platform, and we are -- I am -- I have authorized the videotaping of the hearing solely for the

purpose of if I determine that some portion of this really should have been on the public record that it can be made available on the record.

Not knowing what was going to be discussed exactly and understanding that there might be some confidentiality issues, I decided that we should just proceed in this way, rather than by making it open and then trying to pull it back. So that is the purpose of videotaping it. I don't really -- normally wouldn't do that.

But under the emergency circumstances here, I have proceeded this way. And I think it is the soundest way of proceeding in that way. And also I can make any portion of this that would be public be available to the public.

Additionally, I want to note though that the videotape is not -- will not be the transcript of record. The only transcript of record of that will be created by Ms. Welch as the court reporter in this matter. And you are not to refer to the videotape at any point as kind of the official record in this matter. And, of course, the transcript will be filed.

I am -- just was, frankly, perplexed by the response that the State filed last night. And I know everyone is busy. I'm not trying to in any way minimize how busy you are. And -- and Mr. Russo already has told me from the start that he has to be out -- that he has to be complete by 10:00.

Are you starting the hearing in front of Judge Brown

at 10:00, Mr. Russo?

MR. RUSSO: Your Honor, that hearing is at 10:00. But we have sent two of our colleagues there to do it so we could be here. So Mr. Belinfante and Mr. Tyson are there, and Mr. Miller and me are here. So you have got us today.

THE COURT: Okay. Very good. Wonderful.

MR. MILLER: And I think the 10:00 issue was specific to Dr. Coomer's availability.

THE COURT: All right. Very good. So please, everyone, bear that in mind as to Dr. Coomer's availability because if there is something that he needs to address early on, whether it is from the perspective of the Court or the State, let's be sure we just jump ahead and get his input.

MR. RUSSO: Your Honor, also, we have the staff from the Secretary's office on standby. We have Mr. Germany, the general counsel, on right now. But Mr. Sterling and Mr. Barnes are -- we told them to continue working since they have election stuff going on and that if you needed something from them we would patch them in accordingly.

THE COURT: That's fine. All right. Well, as I understand it, the -- from what you -- from what the State submitted last night -- and it wasn't on the record. That was just, I think, a letter from counsel. It was that you -- that basically the State defendants were proceeding, that you were sending the software out today -- the software to jurisdictions

across the state, and basically this is a distraction that I was causing, and it was none of my business. Well, that was the tonality of it. It was a quick letter.

But let me just say -- start from the start is that I think I have endeavored to work cooperatively with everyone. I have an order to issue. I need to -- whatever it says, whether it is just simply -- you know, doesn't do anything at all, which is certainly -- you know, given everything I have told you in the past that I am very reluctant to even consider in this election saying, oh, suddenly do a sudden change to the paper ballot.

But I still -- this is still a record. And I don't know what will happen in the days ahead. But I think that the Court is entitled to, with respect, be given the information needed to issue an intelligent decision. And this was a change of circumstances.

And I am -- I don't know who thought I wouldn't have issued a decision without full knowledge of the circumstances that have arisen. I don't mean this personally against anyone. I think everyone has generally been very professional with me. But this is not an acceptable response, and I know everyone is short on sleep and at their wits' end on some things. So I understand it that way. I sure am very short on sleep too.

And there is a lot of stress under these circumstances. So I humanly recognize all of that. And so I

just sort of had to breathe in and say, all right, where are we going from now, once I got the response and just say, all right, you know, without any drama, I want to understand what is going on.

And that -- the expectation I had was not the -- that things were just proceeding and that I wouldn't basically know what was happening.

So I think that is -- just as an initial matter, that is where we're at. I mean, I am, you know, at 95 percent on having an order ready to be timely issued. And I held it back while this is going on.

And, of course, that is why on Monday we issued the order on the one thing that was clearest that needed to be acted upon as soon as possible. But I was holding back as soon as I heard anything was going on.

So let's just talk about what has happened. My understanding from the letter on September 29th that is on the record that -- as opposed to the letter that I received yesterday from counsel that the acceptance testing -- there would be acceptance testing that would occur before there was going to be distribution.

I guess it is a filing now. I'm sorry. I didn't realize that counsel's letter was filed. So excuse me for that.

In any event, I thought there was going to be

acceptance testing before there was distribution. And maybe there was, and maybe I misunderstood what was instead stated in the brief letter.

So, first of all, let's just start off just as to that. Did that occur?

MR. RUSSO: Your Honor, yes. So, first, you know, let me say we filed the letter under seal because that is what was discussed on Monday. As a letter, you said to file it under seal. So that is why we filed it that way.

THE COURT: That is fine.

MR. RUSSO: We didn't necessarily think there was something in there that was attorneys' eyes only or anything to that extent.

THE COURT: All right. Then I will lift the seal. Okay. Fine.

MR. RUSSO: In terms of the acceptance testing, the Secretary of State's office did conduct acceptance testing prior to distribution of the update. That is correct. Mr. Barnes did that. And then the distribution proceeded.

THE COURT: And when did Mr. Barnes do that?

MR. RUSSO: I believe his acceptance testing was done -- conducted yesterday. Mr. Miller might -- might know if it was done yesterday or the day before. Frankly, my days are starting to run together right now.

THE COURT: Yeah.

MR. MILLER: Your Honor, I believe it was done Monday and Tuesday. And so the kind of process through that -- the acceptance testing was, you know, essentially receiving the application from Pro V&V and running through just a typical acceptance testing and, you know, primarily ensuring also that the rendering issue that was discovered in logic and accuracy testing was not recurring.

And, importantly, you know, there's -- acceptance testing was not the only thing being done. The voting system test laboratory was also doing its part.

And, frankly, Your Honor, as to the filing, we certainly didn't intend any disrespect. We do, you know, have to note our objections. And, of course, it becomes an awkward situation to do so. And we do appreciate your understanding throughout this thing.

But we also, frankly, understood that you may be seeking the Pro V&V evaluation, which the formal evaluation we just -- we don't have right now. They have completed the evaluation. The written report is not done yet.

MR. RUSSO: That's right, Your Honor. That was in our filing yesterday. And we didn't -- you know, we expect that report -- to have it by the end of the week.

To the extent there is any delay from Pro V&V getting us the report, we just didn't want, you know, there to be any -- any misunderstanding about a delay if we made that

representation. But we do expect it by the end of the week, and we will file it upon receipt.

In terms of the EAC issue, you know, the order said to file -- to file anything that is filed with the EAC, presuming a filing is made with the EAC. Dominion actually does -- Dominion would make the filing with the EAC, not the State. And Dr. Coomer can speak to that.

But there appeared to be some misunderstanding in counsel's email yesterday regarding the EAC filing. But to be -- to be clear, we -- since it has not been filed yet, we didn't have any update for you. But that is a Dominion issue, not a Secretary of State issue.

THE COURT: Well, it is obviously the responsibility under the state law still though for you to have an EAC-certified system.

MR. RUSSO: Well, Your Honor, I mean, the update is a de minimis update. So that is according to Dominion.

In terms of what state law requires and what state law doesn't require, I mean, there is not a claim in this case regarding our compliance with state -- with state law. The only state law claim that was in this case was abandoned by plaintiffs earlier and dismissed in Your Honor's order on the dismissal a couple of months ago.

THE COURT: All right. Let me just put it this way. I mean, it is an indicia of -- it is an important indicia of

what is going on and is this -- and from an evidentiary perspective certainly relevant.

So I would -- you know, I went back at least and looked at the most recent regulations issued by the EAC. And I didn't see it as not being a requisite step to -- even a software modification as being requisite. Maybe I will hear differently from Mr. Coomer or Dr. Coomer -- excuse me. And Dr. Coomer is welcome to address at this point where things stand.

DR. COOMER: Good morning, Your Honor. This is Dr. Coomer. Yeah. So I'll try to describe the process again.

So we identified this change. And it was our feeling that it was de minimis. But we do not make that determination ourselves as a company.

So the way the EAC process works is we submit that change to an accredited laboratory, in this case Pro V&V. They analyze the change. They look at the code. And they determine whether it is de minimis or not.

If it is de minimis, then they do whatever testing they need to do to prove the nature of the change and verify it. And then they label it a de minimis change. They write a report. And at that point, it is just submitted to the EAC as what is called an ECO, an engineering change order.

So there is no new EAC certification effort. It is simply updating the current certification for this ECO. And

that is what we --

THE COURT: I'm sorry. ECO? I'm sorry.

DR. COOMER: ECO, engineering change order. And this is a software ECO. And that is how the process works.

So once Pro V&V has the final report, we will submit that to the EAC, Election Assistance Commission, certification as an ECO, engineering change order, for the current EAC-certified system, the 5.5-A.

THE COURT: So the November 15 clarification -- notice of clarification from the EAC that indicates that a proposed de minimis change may not be implemented as such until it has been approved in writing by the EAC, that is meaningless? That is Provision 3.4.3.

DR. COOMER: I have got to be honest. We might be a little bit out of my bounds of understanding of the exact rules and regs there.

THE COURT: And Mr. Maguire, as counsel for you -- it looks like he is present.

MR. MAGUIRE: Yes. That's correct, Your Honor.

THE COURT: Is that said at all?

MR. MAGUIRE: I'm sorry. I'm unprepared to address it, Your Honor.

THE COURT: All right. That is fine. I didn't ask you to be prepared. I just wanted to -- in case you wanted to, I wanted to give you that opportunity.

MR. CROSS: Your Honor, if it is helpful to you, Mr. Skoglund -- this is an area of expertise for him.

Your Honor has hit the nail on the head, which what Dr. Coomer's explanation left off was once that EAC paperwork goes in you still have to wait for approval from the EAC. The EAC has to agree that it is a de minimis change and that it can operate under the existing certification.

If they disagree, then you have got to get a new certification. But until that is approved, you do not have EAC approval to proceed. And Mr. Skoglund can explain that in more detail. So right now they would be proceeding without EAC approval. That is where we stand. That should be undisputed.

THE COURT: Maybe that is what they have determined they must do. But I'll let Mr. Skoglund briefly discuss it. I mean, I think it is sort of evident.

But, Mr. Skoglund, can we -- thank you.

MR. RUSSO: Your Honor, one quick point. O.C.G.A. 21-2-300(a)(3) is clear that the equipment has to be EAC-certified prior to purchase, lease, or acquisition. The ongoing EAC certification that is now being raised, that is not in the statute. But Mr. Skoglund can go ahead and explain the rest of the process.

THE COURT: All right. And I'll get back to you, Mr. Russo.

MR. SKOGLUND: So I would just agree with what has

been represented already. That is correct. You void your certification if you don't have written approval before making this change.

So the correct process is to go to the VSTL, then go to the EAC, have them review it. They are the ones who make the determination of de minimis based on the recommendation of the VSTL. But it is really up to them to decide that. And then they are the ones who bless it as being part of the certification.

THE COURT: Either Mr. Russo or Dr. Coomer, is there any -- has there been any type of contact at this point with the EAC to say you are in emergency circumstances?

DR. COOMER: This is Dr. Coomer. I don't -- I don't believe so. But we were waiting for that final report from Pro V&V. And then that would be immediately submitted to the EAC.

MR. RUSSO: That's right. The Pro V&V report --

THE COURT: I'm sorry. Who is speaking right now?

MR. RUSSO: Vincent Russo.

THE COURT: All right. I'm sorry. We've got a lot of people here.

MR. RUSSO: No problem. The Pro V&V report or Pro V&V has indicated it is a de minimis change. So as Mr. Skoglund mentioned, the EAC will take that report and that recommendation and proceed from there.

But, again, we will file that report with you. And

Dominion will move forward with its piece in reliance on that report.

MR. MILLER: Your Honor, I do also just want to point out briefly that, you know, EAC certification is not necessarily across the board. There are other states that don't have EAC-certified systems. Of course, we're still seeking to -- Dominion is still seeking to obtain the certification. But I did just want to point that out for the Court as well.

THE COURT: This is a -- obviously, it is a provision the EAC has because it is -- no matter whether you call it de minimis or not, it always obviously raises issues when you change a piece of software and then you have to redo everything.

You are obviously all doing testing, and I am glad that you are doing the testing. But the fact that you could be in a place that doesn't require anything is one thing. But, you know, we are using a statewide system. So it has larger repercussions when you have a statewide system also.

All right. And so the software -- the new software is supposed to be distributed today. And what is the schedule from -- since you have said you are going forward even without the EAC approval or without seeing the actual testing documentation, what is your next plan? What is going to happen next?

MR. MILLER: Your Honor, it was distributed yesterday, I think, with the dropoff. And which also I do want to briefly mention, you know, we sent an email about the confidentiality of the dropoff process.

At this point, that is no longer confidential. It was the prior to -- you know, it is a schedule of secure transfer of files that was filed on the public docket. And so that is the issue. I did just want to make sure we don't have a loose thread there.

But in terms of the process next, the counties will begin engaging in that logic and accuracy testing that was put on pause after the last issue was discovered. And so we started that. The counties will also verify the hash value on the software that was given to them, which has already been verified by Pro V&V, the hash outside of the system at the Center for Election Systems, and additionally a hash again outside of the BMD system before those software was copied to the drives that were sent to the counties in sealed envelopes -- sealed, numbered envelopes via the post-certified investigators connected with the Secretary of State's office who met their county liaisons at Georgia State Patrol posts. That was --

THE COURT: What was verified at the Georgia State post?

MR. MILLER: That was where the transfer occurred.

So when the software was received -- you know, Pro V&V conducted their verification and validation, provided the trusted build hash to the Secretary's office. The Secretary's office then compared that trusted build hash to the hash of the actual software they had received outside of the BMD system.

You have heard here before the concept that the BMD can trick you into saying that the hash is verified. But, again, this is wholly outside of the system such that that is -- that is a separate issue entirely.

After that delivery to the counties, the counties will also verify the hash and will then conduct their logic and accuracy testing.

THE COURT: All right. All I was asking was when you said something was verified when they picked it up at the Georgia State Patrol.

That was just the sealing -- the seal of the envelope?

MR. MILLER: Your Honor, yes. So the envelope was sealed by -- right, was sealed by the Center for Election Systems. And then the investigators of the Secretary's office met county superintendents at Georgia State Patrol posts.

THE COURT: Okay. That's fine. Have you in any way expanded the scope of your logic and accuracy testing in light of these circumstances?

MR. MILLER: Your Honor, so I think -- I guess I

would separate it out briefly in that the Center for Election Systems conducted their own sort of modified logic and accuracy testing, which I referred to earlier as logic and accuracy testing within CES, on BMDs that they themselves had that have never been used in elections to verify that -- first of all, that that same issue was not recurring but also to continue the logic and accuracy testing such that -- to confirm that there were no ancillary issues brought in to do so.

At the time it is sent to the counties, the counties will then conduct their logic and accuracy testing, which now also includes before inserting anything into the BMD verifying that hash number, verifying it is the correct software. That is kind of the initial step, which I believe -- I don't have the letter in front of me. But we laid out kind of that first couple of steps of the logic and accuracy testing.

THE COURT: All right. But you haven't decided at this juncture -- to your knowledge that there have been no change in the logic and accuracy testing protocols or just going from one electoral race to the next in the machines so that you don't do the entire ballot on every -- on a larger number of machines in each of the counties?

And that is the process you-all described, one race for one and then round-robin.

MR. MILLER: And I'm not sure I can speak to any of the -- any detailed adjustments. What I will say is the

testing that was done within CES included five different ballot styles that were chosen from Dekalb County being a county that would have large ballot styles -- basically, you know, a number of races, number of different types of ballots on there. And then they were conducted on those different styles and also conducted on the four different machines and printing out basically hundreds of ballots to confirm the testing.

THE COURT: Well, as far as you know, there has been no -- no one has considered trying to test a larger range of the ballot -- the full ballot in a larger range of machines as testified to in -- at the hearing and which was the protocol that Mr. Harvey indicated was the protocol in his testimony? Is that right?

MR. MILLER: Your Honor, as I understand it, the full ballot is tested on all of the machines.

THE COURT: That wasn't his testimony. The testimony was -- is that one race -- you picked a race. You went to the next machine, and it would do the next race. And then you would -- if you exhaust the race, which in Georgia you probably wouldn't exhaust the race, you would start with the next one -- if you had 12 machines, you did the 12 first races. Then you would go back to Number 1 machine, and you would go -- and it would do the 13th race. Then it would go to Number 2 machine, and it would do the 14th race.

That is what I'm getting at. So that, really, you

have a fraction of the machines that are actually doing the race at issue. But it might screw up other races. So that is really what I'm trying to get at.

But it doesn't sound like there have been any change in the process, in any event, from what you know.

MR. MILLER: Your Honor, I would defer to the testimony and the written instructions on logic and accuracy testing. But yes. To answer your question, I couldn't comment as to any sort of very specific minutia within that.

THE COURT: All right. I'm really not asking you to testify yourself as to it.

As far as you know, no one has indicated to you that they changed any of the --

MR. RUSSO: That's correct, Your Honor. As far as we know, the process is the same as Mr. Harvey has discussed previously.

THE COURT: That's all I'm trying to get at.

MR. RUSSO: You know, with respect to printing the ballots and each race that we discussed at the hearing, that hasn't changed. The only change is with the logic and accuracy testing are to ensure that the hash value -- check the hash value of the new software and the version on the front end.

THE COURT: And does Dr. Coomer know what was -- what type of testing was done on the software at PV&V?

DR. COOMER: Your Honor, I'm not sure of the complete

test plan that they completed. Again, Pro V&V themselves determine what test plan is necessary based on their analysis of the code itself.

THE COURT: They didn't tell you?

DR. COOMER: I don't have the details. I would just -- I could probably get that. But I don't have the details.

THE COURT: When did they complete it?

DR. COOMER: I believe they completed that either late Monday or Tuesday.

THE COURT: Do you know who was performing the testing there?

DR. COOMER: The individual employees' names, no, I do not.

THE COURT: I mean, is there a head of the unit that deals with security or not at this point? Because we had very vague testimony of that at the hearing.

DR. COOMER: I don't know the makeup of Pro V&V's employees.

THE COURT: And do you have a backup plan in case, in fact, there are issues that are arising in connection with this? I mean, you are hoping for the best. You are thinking the best will occur. But what -- if there are issues again, what is the plan?

DR. COOMER: We'll work with our -- we'll work with

our partners at the State to do whatever is necessary.

MR. RUSSO: Your Honor, this issue, as you recall, came up as a result of this U.S. Senate special election having too long of a -- too many candidates and the Secretary of State not wanting to have any candidates claim that they were unfairly treated by being on the second page because surely someone would say that by being on the second page they lost votes.

We are not aware of any other issues with the BMDs that would change, you know, the processes going forward. I mean, Mr. Barnes conducted logic and accuracy -- his logic and accuracy testing -- his acceptance testing I should say -- on the machines.

The machines will go through acceptance testing. If anything new is discovered in that process, we'll, of course, have to address that. But we have no reason to believe at this juncture there is anything new since this issue with the ballot -- the number of candidates being on one screen has been resolved.

THE COURT: Dr. Coomer, did you get an opportunity to read Dr. Halderman's affidavit that was filed that if it really was just simply only the first time ran on a machine why wouldn't it have been adequate essentially to address this by just basically running it the first time?

DR. COOMER: Well, so there is a

mischaracterization -- I'm not sure where that came from. So I did not have a chance to --

THE COURT: Uh-oh. Everyone put themselves on mute, and we'll try to --

DR. COOMER: So I didn't read -- I didn't have time to read the entire declaration. But I will say that -- and not to disparage Dr. Halderman whatsoever. But he is making assumptions when he does not have an understanding of the actual issue.

If I had time and charts and I could work on a whiteboard, I could explain exactly what the issue is. But it is not that it happens the first time. I said that it only happens once -- can -- not that it always does -- but can happen only once during a voting cycle. And that is a power cycle of the machine. It is a rare occurrence that based on -- not just the ballot layout but, you know, the sequence of how the voters have gone through the ballot.

There are essentially some indexes that are created by Android operating systems. And we have an index that we are referencing. And if there is a collision between those two, the issue happens. And it can only happen once because Android keeps incrementing these indexes.

So it can only collide once. And there is a very specific set of circumstances that leads to this collision. And it doesn't happen every time.

Our analysis showed us how to actually reproduce that deterministically. So I have seen some other things -- I'm not sure if it was in Dr. Halderman's declaration or not -- that we didn't understand the root cause of this and it was undetermined how and when this could happen. And those statements are not correct either.

So this is why we felt very confident in this change because it is very minimal. Instead of referencing this particular ID, we reference it now as what is called a tag. There is no collision possible between our tag and these Android IDs.

And then just to hit on this point, you know, asking what if something else happens, well, this version -- you know, the certified version that is being used in Georgia has been -- has been used by millions of voters across the U.S.

This is the first time we have seen this issue. And, again, it is due to the unique layout to handle the special Senate contest with the two columns of candidates.

So I just wanted to sort of make that known. You are still on mute, Your Honor.

THE COURT: Can you explain to me what the -- to make sure I don't misunderstand what you mean by power cycle, is it -- basically it could happen every time that -- is it when you turn the power on and then the next time when you turn the power on?

DR. COOMER: Correct. Yeah. When you turn the power off and you turn it back on, Android starts those indexes back over.

THE COURT: All right. Then does it happen each time just in the beginning or any time in the cycle? That was the other part that was a little confusing to me because I had thought you indicated before or somebody had indicated it was right at the start of the cycle.

DR. COOMER: No, it is not right at the start. Again, it depends on a variety of factors. So, you know, it depends on the number of -- the number of display elements that are on the ballot itself and how the voters walk through.

So it could be -- it could be several voters. And, again, it doesn't happen all the time because you have to have this unique overlap, you know. And that is wholly dependent on, you know, the sort of behavior of the voters going through the ballot of whether they just happened to hit on this unique circumstance. But it is not -- it is not necessarily within, you know, X number of voters.

THE COURT: Okay. And it is not -- so if you -- it is not dependent on the fact that this is the first time you've -- it is not the first ballot in any event?

DR. COOMER: Correct.

THE COURT: It is not the voter who gets -- who is the first one in line who gets it necessarily?

DR. COOMER: Correct.

MR. CROSS: Your Honor, could I ask a quick clarifying question?

THE COURT: Yes.

MR. CROSS: I just want to make sure I understand. On Monday, Dr. Coomer said -- he said this happens only once for one voter during a complete machine cycle. That was where Dr. Halderman's understanding was coming from.

So is it right that it is not just once for one voter during a machine cycle? It could happen more than once?

DR. COOMER: No, not during the machine cycle. When I say machine cycle, I was referring to power cycle. So it can only happen once.

MR. CROSS: So then why is Dr. Halderman wrong? Why couldn't you just power it on?

DR. COOMER: Because once is not the same as first.

(Unintelligible cross-talk)

MR. RUSSO: We are here to answer your questions, frankly. Plaintiffs can go do discovery if they would like to. We are in discovery. So you can continue to answer for now. But I did want to raise that before we --

THE COURT: I think -- Mr. Russo, I appreciate that. But it was -- I certainly had the impression that Mr. Cross did too. So I'm very happy that Dr. Coomer is explaining it.

So if Mr. Cross had a misunderstanding too, then I

think he is entitled to try to --

MR. RUSSO: And that is fine. I just wanted to make sure before we got too far down this road that I raised this.

THE COURT: All right.

MR. CROSS: So, Dr. Coomer, all I was asking you: It will happen only once in a power cycle, but you don't know when it will happen, meaning you couldn't just do a single test ballot? You would have to do test ballots until it happened the one time and then you --

DR. COOMER: Right. And, again, to be clear, it doesn't always happen. Right? It is this unique way of going through the ballot. So you could -- you could say, oh, I'm going to wait until this happens and it never happens because you have passed those conditions.

MR. CROSS: Got it. Okay. Thank you. That is really helpful, Dr. Coomer.

DR. COOMER: Sure.

THE COURT: So -- and maybe one has to have Mr. Barnes here or someone else from the department present. So I'm just trying to understand how the logic and accuracy testing that is being performed at this juncture mirrors that -- those conditions since it is not necessarily the first time it has been done.

What were -- what are the instructions to make sure that it doesn't happen, partially because, you know, the point

really is the size -- the vote should be counted properly is you just don't -- it could -- there are repercussions if it does in terms of people getting confused at the polls and other sorts of problems that can happen there that it triggers -- the people are worried about their votes and one comes to a halt, et cetera.

MR. CROSS: Your Honor, could I ask one more question?

Dr. Coomer, you mentioned that you could do -- you figured out a way to do it deterministically, which means you could trigger it. Would that work to -- rather than doing new software, could the counties trigger it using this deterministic approach? Then you could trust it wouldn't happen again with the existing software. Would that be a fix?

DR. COOMER: I mean, that is -- theoretically, that is possible because it depends on, again, a lot of variables. So each -- you know, obviously each county and each machine has -- may have a different set of ballots on there.

So like -- so what we did is -- obviously, this was identified in two counties. And we know the ballot styles that they were testing in those counties. So we zeroed in on that and found a way using those two projects how to make it happen.

We would have to do that for every machine in every location because it is dependent on the ballots that are in that machine to then want to determine whether you could make

those IDs collide.

Does that -- does that clarify? That would be, again, theoretically possible. A nightmare. And then that whole process would have to be done every time the machine is turned on.

THE COURT: Let me start this way simply: You-all did some logic and accuracy testing yourself when you were trying to do the software modification?

DR. COOMER: Oh, extensive testing. Extensive.

THE COURT: All right. How did you modify -- how did you do it so that -- in light of these circumstances in terms of the protocol so that you would -- it would be at least randomly captured?

DR. COOMER: Right. So -- well, the first thing we did is obviously analyze the projects where it was -- where the issue arose. And that led us to figuring out what the root problem was.

Then our initial testing was we actually set up a quick project where -- knowing how the code behaved we knew exactly the steps to take within a few clicks to make this issue happen. Right? And so we set that up, verified on multiple machines that we could make it happen according to step A, B, C.

So then we applied the change and then redid those steps, verified that that issue no longer arose, and then we

took that back to, you know, the actual -- some of the actual real Georgia elections that would be tested and ran full regression tests over several days to verify that nothing else was impacted.

THE COURT: You ran full regression tests to determine what? I didn't hear the last part of your sentence.

DR. COOMER: That no other functionality was impacted.

THE COURT: So have you made any recommendation to the State regarding any additional measures that should be taken in order to test the functionality of both the fix as well as that it didn't impact anything else?

DR. COOMER: So I don't -- I don't know all of the information that was communicated to the State. But I believe we did -- again, as I mentioned, we had those two counties where we -- you know, where the issue was experienced. We know how to make it happen in those two counties. I believe we provided those steps to the State for verification. But, again, I'm not the one that is actually communicating the operational aspects directly with the State.

And then as far as the other functionality again, the pre-logic and accuracy testing process we feel is enough to verify that the system as a whole is still functioning as it should.

THE COURT: Let me just say that in your testimony

before this Court you indicated that you had not been aware that -- that the full ballot had been tested in each machine.

So I guess would it be wise to have more of the full ballot tested in every machine? I mean, for instance, among other things, this particular race?

DR. COOMER: I'm not sure -- I'm not sure I'm following. But, again, you know, the logic and accuracy testing that I'm aware of from the State I believe is adequate.

THE COURT: I don't want to get into a cross-examination with you myself about that. But you do understand that there is only a small fraction of the machines each that are tested for -- for instance, as to this particular race that are going to be out in the field?

DR. COOMER: Again, I don't -- I don't know every single detail of the L&A that they are doing.

THE COURT: All right. That is fine. Then we'll just -- we'll stop at that then.

Mr. Russo and Mr. Miller, is there anyone who is familiar with the -- what the instructions have been to the field with the State available just to talk for -- speak for a minute or two?

I know Dr. Coomer has to leave in four minutes. So before we do that, I want to make sure that there is not anything else that counsel wish for Dr. Coomer to address.

MR. BROWN: Your Honor, this is Bruce Brown. I have

one question for Dr. Coomer.

Our information is that the version of the software that was certified was .30 and the current version is .32.

What was .31, and what is .32? And have the incremental changes from the various versions been tested, certified, or approved?

MR. MILLER: Your Honor, we're just going to raise the same objection earlier as far as cross-examination of the witness right now.

THE COURT: Well, I think it is --

DR. COOMER: Version numbers change for a variety of reasons. I'm not even sure what that question is trying to get at.

THE COURT: Well, it is trying to understand if there have been software change or some other change between the 5.5-A, I guess, .30 and 5.5-A.32, which this is. In other words, what happened -- do you know what was .31?

DR. COOMER: There is absolutely no other change than the one we supplied that we alluded to.

MR. BROWN: So why are there two version numbers?

DR. COOMER: There is not two version numbers. There are a variety of reasons why when you do a build a version number turns out the way it does.

I don't know what you are digging at. But I can tell you -- I can state as fact -- and I just did -- that the

only --

MR. MILLER: Your Honor --

DR. COOMER: -- between those two builds is this change that we submitted.

THE COURT: All right.

MR. BROWN: So there is not a version 31?

(Unintelligible cross-talk)

MR. MILLER: Your Honor, we just reraise the same objection. Dr. Coomer is here voluntarily right now. Dominion is not a party to this. He is trying to be helpful to the Court. And we are going down a path of cross-examination again.

MR. CROSS: Why are they scared to answer questions?

THE COURT: All right. No more commentary, let me just say. My understanding --

DR. COOMER: I'm not scared to answer your questions.

THE COURT: All right.

MR. CROSS: I wasn't talking to you, Dr. Coomer.

THE COURT: My understanding just from what Dr. Coomer said was very -- there were a lot of people speaking -- is that Dr. Coomer said that there was no separate change from the 5.5-A that has been made so that there is -- to the extent the other one had a .30, there was no .31 separate change.

DR. COOMER: That's correct.

THE COURT: Is that correct?

DR. COOMER: That's correct.

THE COURT: All right. Fine. Thank you. Is there anything else?

All right. Doctor, you are welcome to stay as long as you want to stay. But I understood that you had a hard deadline.

DR. COOMER: Yeah. I do have a hard stop, and I do appreciate that.

THE COURT: All right. Thank you very much.

MR. CROSS: Thank you, Dr. Coomer.

THE COURT: Is it Mr. Barnes who is giving directions to people in the field about the L&A testing at this point?

MR. RUSSO: I think Mr. Barnes would be the best person to try to answer your questions. He is involved with the development of logic and accuracy testing.

THE COURT: All right. Is he --

MR. RUSSO: We're going to -- if you can give us one minute here to get in touch with him.

THE COURT: That is fine.

(There was a brief pause in the proceedings.)

THE COURT: Good afternoon, again, or good morning. Morning, Mr. Barnes, also.

I just -- we were discussing the circumstances around the software being distributed and subject to logic and

accuracy testing again. And I wanted to find out whether there were -- to your knowledge, whether there were any additional instructions about conducting logic and accuracy testing that was given to any -- all or any of the counties relative to the software.

MR. BARNES: The one additional instruction was for the counties to verify the new hash signature for the new version number of the ICX application.

THE COURT: And therefore am I to assume that there were no -- there was no other modification and in particular there was no expansion as to the number of the ICX machines that were going to be tested for purposes of looking at that race in particular or any other races?

MR. BARNES: Again, we did not give them another list of instructions to follow for their L&A testing. Part of their normal L&A testing is to check every vote position on every ballot as they go through the ballot style. And that is how the occurrence was found with the old version. So we were just going to have counties follow the same protocols with the new version.

THE COURT: Mr. Harvey had confirmed before though that the instructions were that you would run the ballot -- let's say -- let's -- just consider that there were ten machines, let's say, that were being tested. That you would run race Number 1, which would presumably be the presidential

race, on Number 1 machine. Then you would run race Number 2 in priority on machine Number 2. And when you had finished the ten, then you would go back -- the 11th race would be tested again -- would be tested on the machine Number 1 again.

Is that something different than you know of?

MR. BARNES: No. What my understanding of the L&A procedure is is the ballot is loaded on to the L&A -- on to the test screen ballot. And then the first race of the ballot is displayed. And then on that race, they will mark each -- they will touch the first candidate, validate that the mark is there; proceed to the next race on the ballot; mark the candidate, make sure it is there; and proceed all the way through the ballot until they arrive to the summary screen. And they validate that they see those selections on the summary screen.

They then backtrack. Go back to the first race in the ballot, remove the mark from the first candidate, and then mark the second candidate in that race and proceed through the ballot again all the way through the summary screen.

And this is done to make sure that every vote position is responsive and that the system shows that summary selection at the end. They will produce one printed ballot through that exercise with at least one of those candidates per contest marked. But they won't produce a ballot for every instance, for every candidate in every race on every machine.

They will just produce one printed ballot at the end of that test of that particular BMD.

THE COURT: And have you looked at the instructions that were given in January via Mr. Harvey's office?

MR. BARNES: Yes, ma'am.

THE COURT: And that is what you think is consistent with what -- what you have described is consistent with the protocol described?

MR. BARNES: Yes, ma'am.

THE COURT: Well, let me walk through it again. Because that certainly was not my understanding from the testimony provided or from the observations that were provided by people at the -- observers at the polling.

So I'm not -- so you are saying basically the member of the staff who was testing it will go in and vote on the presidential race? And just walk me through it again so I can stop you now that I have heard the whole -- what you think is supposed to happen.

MR. BARNES: Okay. So we'll take it as a single race, single -- single ballot, single race. And we will say the presidential race, which has four candidate options.

On the testing, they would load the ballot, bring up the contest that shows the four -- the four contestants. They will mark the first contestant and then leave that screen and go to the summary screen to validate that that mark is showing.

They would then go back to the race itself, remove the mark, and then put a mark for the second candidate and then proceed back to the summary screen, confirm that that is showing. Go back again to the ballot, remove the mark, mark the third candidate in the race, proceed to the summary screen, confirm that is showing. And then go back to the race, remove the mark of the third candidate, put a mark for the fourth candidate, which is the write-in, type in some form of a name, proceed to the summary screen, verify again that that is showing.

Then they would backtrack, go back to the race itself, remove the mark, go to the summary screen, verify that that mark again is not showing. Then go back to the race. And now they are going to put a mark on the ballot so that they can produce a printed ballot from the machine.

And they may select the first candidate or second candidate or third candidate depending on what they are needing to produce for their test deck. So they may do the first candidate and then proceed back to the summary screen and then print the ballot.

THE COURT: So is the printed ballot the one with all of the choices?

MR. BARNES: The printed ballot will only have the one selection made at that last operation. The ballot can only have one mark for the race.

THE COURT: I don't -- because I don't know whether -- is anyone with you from -- are you able to receive an email if I send counsel the L&A procedure -- January procedure and they sent it to you at this point?

MR. BARNES: Yes, ma'am. I have access to email.

THE COURT: I don't want to be the person directly sending it to you. But -- all right. But if counsel doesn't have it directly offhand, Ms. Cole can send it to one of you right away so you can send it on.

Send it both to Mr. Miller and Mr. Russo.

LAW CLERK COLE: Okay. I can also send it to Harry, and he can share it on the screen.

THE COURT: Okay. Why don't we do both? Why don't we send it because it is harder for -- let's do both and give Mr. Barnes an opportunity to look at it. All right?

(There was a brief pause in the proceedings.)

MR. BARNES: I haven't received anything as of yet.

LAW CLERK COLE: Mr. Martin has it now if you want him to share his screen.

THE COURT: I want Mr. Barnes to be able to review it without having to see it on the screen first.

MR. RUSSO: My email might be running a little slow. So I emailed it. So it is just a matter of --

THE COURT: That is fine.

Ms. Cole, can you pull up Mr. Harvey's affidavit

also?

LAW CLERK COLE: Yes.

MR. RUSSO: Do you know what docket number that is?

THE COURT: Well, the affidavit?

MR. RUSSO: Yes, ma'am.

LAW CLERK COLE: My recollection is it is 834-3.

MR. RUSSO: Thank you. I was just trying to look through the transcript for that explanation. I was not finding it. I appreciate that.

MR. CROSS: Do you mind forwarding that document that Ms. Cole sent you so that I can pull it up too?

MR. RUSSO: Yes.

MR. CROSS: Thank you.

THE COURT: Does everyone have the procedure?

Mr. Barnes, you don't have it still?

MR. BARNES: No, Your Honor, I do not.

THE COURT: Mr. Russo, did you send it?

MR. RUSSO: I did. Let me try again.

THE COURT: Okay. Very good.

MR. MILLER: I think we both actually sent it.

THE COURT: All right.

(There was a brief pause in the proceedings.)

THE COURT: All right. Mr. Barnes, did you get it yet?

MR. BARNES: Yes, Your Honor. I just received it.

THE COURT: Very good. Let me give you an opportunity -- I'll give you the opportunity to read the portion that deals with the process for looking -- testing the polling place scanner, that one -- I'm sorry -- right above it, testing the BMD and printer.

And have you had an opportunity to look at that, that Section D?

MR. BARNES: Yes, ma'am. I'm reviewing that.

(There was a brief pause in the proceedings.)

MR. BARNES: Your Honor, I've read it.

THE COURT: Thank you very much. So my understanding both from Mr. Harvey's testimony on this particular procedure and what the witnesses to the L&A testing observed when they were able to observe this in a -- because it was public was that the description provided in the text under -- in connection with the word example was what was occurring, that there was not -- every race was not in a particular ballot -- ballot machine -- every race that was listed on the ballot was not, in fact, tested on that one machine. That, in fact, it was -- you went from machine to machine as described under the word example.

MR. BARNES: My -- excuse me.

THE COURT: Yes. Go ahead.

MR. BARNES: My reading of the document outlines that the ballot style will be displayed on, we'll say, machine one

and that the process of creating the ballot that is going to be used for the test deck for machine one would be that the -- that the operator would select the first candidate not for just one race but the first candidate in every race on that ballot, proceed through the whole ballot, and then at the end would then print that one ballot that had the first candidate selected.

So that the machine one would have ballot style one and then it would have the selection of the first candidate in every race selected and print it.

On the second machine, the ballot would be loaded. And then from that machine, the ballot that would be printed for the test deck would be the second candidate in each race. And then that ballot would be printed for the test deck.

And then they would go to machine three, load the ballot. And on this one, the ballot that would be produced for the test deck would be the third candidate in each race within that ballot and so forth and so on.

THE COURT: Well, that certainly is somewhat different than my understanding the testimony and evidence. And -- but I understand what you are saying.

What is the -- so just to summarize again is that you understood that if I -- whoever was Number 3 in each race would have been picked -- if you were on the third machine, you would have picked Number 3 -- the candidate in the third position for

every single race?

MR. BARNES: Yes, Your Honor.

THE COURT: And what if there wasn't a candidate?

MR. BARNES: If there is not a third -- if one race has four candidates but the second race only has two candidates, then you do not make a selection at all. You would skip. There is not a third option to choose. So you would leave that race blank.

THE COURT: Then you would continue down the ballot?

MR. BARNES: Yes, Your Honor.

THE COURT: I think this is sufficiently a material change in the way that perhaps it has been presented. I'm not saying anything -- that you are wrong in any way or -- but I just think that I would like to make sure there is nothing that the plaintiffs want to ask in light of that testimony.

And have you observed this yourself or not?

MR. BARNES: I have not been in the field to observe the L&A testing with the new system, Your Honor.

THE COURT: All right. So you haven't been in the field to observe their application of this procedure?

MR. BARNES: That's correct.

THE COURT: All right.

MR. RUSSO: Your Honor, I pulled up Mr. Harvey's declaration, and I'm looking at that. And he seems to indicate that all -- that testing the ballots -- a test deck where you

use every permutation would be overly burdensome and unnecessary, as the Coalition plaintiffs urge, in other words, to generate test ballots so that all candidates in all races within the unique style have received a single vote.

I think maybe that is where some confusion is coming into play. And I think Mr. Harvey was under the impression -- and his declaration seems clear to me. But to the extent there is some confusion that maybe you thought every permutation on the ballot maybe had to run a test deck with every combination, is that -- and I'm just maybe trying to understand it also myself -- where the disconnect is here, frankly.

THE COURT: Mr. Skoglund was, I think, the Coalition's witness or -- is that right? Or was he Mr. Cross' witness?

MR. CROSS: Mr. Skoglund was a witness for the Coalition.

THE COURT: Okay.

MR. BROWN: I'm sorry, Your Honor.

THE COURT: So I'm assuming that you spent some more time -- particular time on this, Mr. Brown.

So are there any -- anything you want to point out or ask Mr. Barnes about?

MR. BROWN: Thank you, Your Honor. My question would be, sort of to cut to the chase -- and that is: On the logic and accuracy testing as described by Mr. Barnes, all of the way

through tabulation, there is only one ballot that is actually tested and that the other testing that Mr. Barnes described was testing the accuracy of the summary screen rather than the accuracy of the final output.

Is that correct, Mr. Barnes?

MR. BARNES: What I was describing was the generation of the test deck that has to be generated at the end of the L&A testing.

THE COURT: Wait a second. I think we should put ourselves on -- everyone but you on mute so that we make sure that we --

Go ahead.

MR. BARNES: Again, what I was describing was the generation of -- it is two parts. It is the L&A test to validate display of ballot operation of the touchscreen being receptive to touch and then the generation of the record from each device that is used to organize the test deck that is then scanned by the scanner.

So the tester wants to go through and look at each race on the ballot, make sure that all the candidates are displayed, make sure that all candidates are receptive to touch, and take that all the way to the end of the summary screen. And then they back out and continue that through all positions.

But when they have completed that, they have to

produce a record. But they are only required to produce one printed record from that BMD. And then they accomplish to get all positions voted and a vote registered by doing the machine one, the machine two, the machine three through the ballot style.

MR. BROWN: Thanks.

MR. CROSS: Your Honor, could I ask a follow-up question?

Mr. Barnes, did I understand you right so if you've got -- well, let's just take a concrete example. There is a Senate race this year that has, as we understand it, it sounds like 20 or so candidates.

So that means you would generate a test ballot that has -- you would generate a separate test ballot for each of those candidates on however many machines correspond. Right?

So let's say there are 20 candidates. You would generate 20 separate test ballots on 20 consecutive machines selecting each candidate in turn.

Do I have that right?

MR. BARNES: What you would do -- let's say that there are -- let's say that there are 20 machines. We'll make a balanced number. Let's say -- actually we'll say there are 10 machines and there's 20 candidates.

Then you will start with machine one, check all the races, check all of the candidates, make sure they are

responsive. But when you are done with that machine, at the end of that machine, you would select the first candidate in that Senate race and produce a ballot printout.

Then you would go to the second machine. The second machine, again, you would check the full race, check all positions, check responses. But when you are done with that, you would produce one ballot from the second machine and that would have the second candidate.

And you would repeat that process through those ten machines. When you got to the 11th candidate, you would be returning back to machine Number 1. And on machine Number 1, you would now select -- again, you have already looked at all of the candidates again already. So on that machine, you are going to produce a second ballot. And that second ballot is going to have the 11th candidate selected.

And then you will continue to proceed in that manner until you have produced a record that -- a vote record that has every candidate in that race voted one time.

MR. CROSS: And if you have got -- if the other elections have fewer candidates -- right? So let's say you are at candidate 6 out of the 20 and all of the other races have fewer than 6 candidates, at that point forward, you would not have any candidates selected on those races for the test ballots?

MR. BARNES: That's correct.

MR. CROSS: So that would mean if we have got a race this year of, say, 20 or so candidates, you would have a pretty large number of test ballots coming out of machines that have no candidate selected for some of those races?

MR. BARNES: That would be correct.

MR. CROSS: Thank you.

THE COURT: Just state that again, what you were saying, Mr. Cross.

MR. CROSS: Because this year we've got a Senate race that has a large number of candidates -- it sounds like 20 or more -- and because once you get over -- say the next highest number of votes is -- I'm trying to think of the easiest way to say what I just said.

Once you get over the next highest number of -- say every other race had two -- only two selections. Right? Once you get to the race that has three or more candidates, you stop selecting any candidates in all of those other races. You don't go back and just select one that you have already selected.

So that means once you get to 3, 4, 5, 6, on up through 20-something candidates when you are testing it, all the other races on the ballot would have no selections on any of those test ballots for all of those machines. So you would be going machine to machine to machine.

THE COURT: You are only going by position number. I

see.

MR. CROSS: So with this particular year with a race with that many selections -- you are talking a pretty large number of BMDs that would have test ballots with only a single candidate selected, which then gets printed and tabulated. Those BMDs would not have test ballots for candidates for all but one race.

MR. RUSSO: I mean, there's always going to be elections where you only have maybe one person in a race. So, Mr. Barnes, that is what you would do, for example, if you had a county commission race also on the ballot and you've got one person in that race. Right. You would put that -- you could check that person off the first -- on the first test ballot. But going forward -- I mean, there is going to be other contested races, of course. You know, maybe you have a house race, a state house race with three candidates. So you have got to go through those three times. But the county commission race with only one candidate would only have -- be selected the first time through.

MR. BARNES: Correct. Correct. And if --

MR. RUSSO: We have had this happen in every election.

THE COURT: Well, I'm not sure that really helps because, of course, when you have only a single -- a single individual then they are in position one. So they are going to

be tested -- those races are all going to be counted as position one.

The problem here we have is position -- the fact that there might not be any others races that have Position 10 and so -- or Position 8. So that basically in the very race that sort of seemed to have -- on the ballot that had created a quirk, you are going to have the least amount of L&A testing -- that's all -- in terms of output.

MR. CROSS: Well, yeah. I'm not sure that is quite right, Your Honor. Let me back up.

They will test every candidate in that Senate race. So that particular race that has a large number of candidates -- right? -- that will get tested.

What it means is that for all of those ballots beyond, say, the first three or four candidates, depending on what else you have there, there will be no L&A testing for any of those other races.

THE COURT: Right.

MR. RUSSO: Well, they are tested the first time. I mean, I think we are saying the same thing.

MR. CROSS: No. No, they are not. What Mr. Barnes is saying is there is no ballot that will be printed at all from those BMDs that gets printed and scanned and tabulated that has any candidate selected from any race other than the Senate race once you get beyond the max number of candidates in

those other races.

And given a lot of those races are only going to have maybe 2 or 3 candidates but we have got a race with 20 or more, you are talking about maybe 50 to 20 machines each time that are not having a single candidate tested to get printed and scanned and tabulated.

MR. RUSSO: I understand what you are saying. But you would have had -- that person who is -- you know, if it is a race of three people, you would have had a test ballot that would have had that person -- the third ballot would have been, you know, in this example that you gave a race of three people.

Now, when you get to person four -- Mr. Barnes can explain it. And if I'm wrong, I'm wrong. Mr. -- I'll let Mr. Barnes explain it.

MR. CROSS: Because once you get to selection -- again, Mr. Barnes, I thought I -- let me just try my question again. I thought we had it straight.

Let's say the maximum number of candidates on a ballot was 4. That is the most you have in any race is 4, except for you have got the Senate race, let's say, that has 20 candidates.

Are you with me?

MR. BARNES: Yes.

MR. CROSS: Once you get to selection five to test that, meaning printing a ballot and scanning it, in the Senate

race, you are going to do that and that ballot is not going to have any other candidate selected for the test ballot; right?

MR. BARNES: On that ballot style. But when there are multiple ballot styles within the polling location, once you complete ballot style one, you then have to do the same thing for the next unique ballot style within that -- within that polling location. So there is opportunity for more ballots to be generated with more selections.

MR. CROSS: Right. But most -- particularly on election day -- putting aside early voting, on election day, most of your ballots -- most of your polls are going to have a single ballot style; right? Otherwise, you are talking about a polling site that has multiple precincts.

MR. BARNES: There is -- every precinct in the state is different. Some only have one ballot style. Some have many. It is a potpourri out there.

MR. CROSS: But with my example, you would have -- unless you are printing multiple ballot styles on that BMD, you are going to have selections -- you are going to have machines five through -- you are going to have 15 machines -- remaining 5 to 20, you are going to have 15 machines for which your test ballot has only a single selected candidate just in that Senate race; right?

MR. BARNES: The ballot that is printed for the test deck, yes. But every position would have been looked at on

that ballot during the examination.

MR. CROSS: On the screen?

MR. BARNES: Correct.

MR. CROSS: And looking at the screen does not tell you what actually gets tabulated; right?

MR. BARNES: The screen is the interaction and the intent of the voter. The ballot is what will be the official record.

MR. CROSS: Right. So --

THE COURT: And the next step is, of course, the scanner tabulator?

MR. BARNES: Correct.

THE COURT: And you can't really test that just from looking at the screen?

MR. BARNES: Again, that is why we produce the record from the machine so that the scanner can also be used to validate that what is coming from the system is what the scanner then tabulates.

THE COURT: I think that the -- I mean, I'm not sure that what is happening in the field is what you are describing. But, you know, I'm just -- based on what the evidence is and the way that Mr. Harvey described it but -- and why he thought everything else was too burdensome.

But that is -- you know, I understand what you are saying at this juncture. I mean, I'm looking at my -- at a

sample ballot here. And -- and basically when we get down to number -- where we were actually thinking of four candidates, we get down to the fifth one, only one of the major leaders here who is in that first top four is Doug Collins.

So all the testing that would relate to other -- identified at least by the polls leaders in this race are after Number 4. So testing of their -- any ballot, including them, would be -- it would be fewer. But that is if it is, in fact, the way it is indicated.

I'm just looking at Paragraph 6 of Mr. Harvey's affidavit and also testimony. And I can't really know at this point that what Mr. Barnes describes based on the testimony and the evidence presented is exactly what is happening.

But, Mr. Skoglund, did you get an opportunity to be present during any of the L&A testing? Remind me.

MR. SKOGLUND: No, Your Honor, I have not been present for any of it.

Can I offer a thought about this?

THE COURT: Yes.

MR. SKOGLUND: So I think that, as I testified before, you know, logic and accuracy testing depends on what questions you are asking. Right? And the quality of the question you ask depends on the quality of the test. So it really makes sense to think about what questions you are asking, what are you trying to find out.

And I think, you know, this is -- this is more logic and accuracy testing that some jurisdictions do. But I think that is not the standard. I think the question is: Does it meet Georgia statute, which I think is quite good and quite strong? I would go further, if it were me.

I think that the way I would do -- conduct a logic and accuracy test and the way I have seen other people do it is you create a spreadsheet essentially ahead of time with the test pattern for votes for what you plan to do. And in that, you try overvotes and undervotes and races where you vote for two and the audio ballot and trying it in Spanish language. And, you know, you try a variety of scenarios.

And then, you know, knowing that you have good coverage in that spreadsheet, then you go to the machine and ask each machine to accomplish that set of tests. That is closer to what I think the Georgia statute requires.

THE COURT: Well, I just would like to know what is actually going to be -- and whether everyone is going to be doing something different actually. That is my concern at this juncture but -- based on the evidence introduced.

But the other thing was simply because this was the -- the alleged tweak that involving this particular ballot one would really want to know it was -- all permutations of that.

It is hard for me to know without -- what I do know is what -- the issue that Mr. Cross elicited. And it might

behoove the State to consider whether to modify at least this in a way -- whatever the process is, if it is, in fact, like what Mr. Barnes describes as opposed to the inference that was given from the procedure as I identified and witnessed by others who were watching the L&A testing in the last election, it really behooves everyone to think about is there something you want to beef up under the circumstances since you have a software change particularly affecting that race.

I can't really say more at this juncture. I'm going to go back and look. But there's really some material differences between the way Mr. Barnes described it and the way it was otherwise described.

MR. MILLER: Your Honor, I don't have the transcript in front of me from the hearing, so I can't speak exactly of Mr. Harvey's testimony.

But as far as the declaration and as I recall the hearing, I think the concept was the concept that Mr. Barnes described of the difference between printed ballots versus the test on the screen. And so I don't think there is --

(Unintelligible cross-talk)

MR. MILLER: -- necessarily inconsistence there but different topics.

THE COURT: Yeah. I mean, there is no question that it was supposed to be getting at the difference as to whether there was a difference between the way it tabulated and the way

it printed and the ballot.

But it was -- but it was much more helter-skelter because -- as opposed to just testing one office per machine and sometimes more depending on how large the ballot was. So that -- I mean, that is exactly what -- not just through Mr. Harvey's testimony but through the affidavit of people who were witnessing it.

So, Mr. Harvey, are you -- is Mr. Harvey in charge of giving you instructions or -- I gather? Are his folks out in the field at all, or is it -- I'm not -- or is it your folks who are doing the L&A testing? I mean Mr. Barnes.

I mean, it is somebody from the county. But who is the technical adviser, if there is anyone?

MR. BARNES: Logic and accuracy testing is a county responsibility. So it is in the hands of the county.

THE COURT: And do they -- are they relying then on that 2000 -- January 2020 procedures manual in determining how to proceed?

MR. BARNES: To my understanding, yes, Your Honor.

THE COURT: And this is not something that you have given directions to anyone about in the field, I gather?

MR. BARNES: That would be correct.

THE COURT: And do you have any idea whatsoever why there was an impression that it was a database that is going to be distributed rather than software in the communication?

MR. BARNES: Your Honor, I do not know why they chose the word database for distribution. It was always that application install -- an application upgrade installation.

MR. MILLER: Your Honor, I believe we can speak to a little bit of clarity on that in that the form that you saw attached to the email that, I believe, Mr. Brown filed is a standard form that is used when databases are delivered to say, here is the schedule, here is where we're coming through.

And so that form didn't change because it was the same type of run. So it is the same type of thing that the counties are used to doing and that the investigators and liaisons sent out. And, you know, frankly, I think it may have been a bit of a misunderstanding amongst the county liaisons who were the direct contact as to what was being delivered but they knew something was being delivered on this schedule.

THE COURT: I would like to just take a short break so I can talk to Ms. Cole privately, and then -- then we'll resume.

MR. RUSSO: Your Honor, could we let Mr. Barnes go or --

THE COURT: Let him stay for just a minute. I won't keep him much more. Thank you.

(A brief break was taken at 11:00 A.M.)

THE COURT: Mr. Brown, Mr. Miller? Let me just say to counsel -- and I realize this is not Mr. Barnes' direct

responsibility. But he also described the process as he envisioned it at least and testified. So that has some value.

At the very least -- and I would say perhaps more than that -- the procedure that was identified on the January memo is susceptible to a very different interpretation or multiple interpretations.

And given the importance of the software -- the L&A testing, I can't tell you that you are mandated, but I think you would be really behooved -- it would strongly behoove the State in the interest of everyone involved here that there be clarification of what the process is.

You are using -- even though it has been identified as a de minimis change, even if it hadn't been a change, it would have been important for there to be -- in this first use statewide in a major election to have this strong L&A testing.

And even if it is construed the way Mr. Barnes says with the effect of it after you get to position four you are going to have fewer tests, you will still have a lot of tests. But, you know, it would have been -- it would be a better thing to have a different process for dealing with this wrinkle.

But even so, I don't think that -- from what the evidence was in the record that it is -- that the L&A testing is being pursued in the way that -- the more pristine manner described by Mr. Barnes. And maybe it is in some places, but in many places it is not.

So, you know, to the extent that, you know, it is still in process, which it definitely is -- it is just beginning -- I would really encourage the State to think about providing clearer directions, you know, thinking about having -- not just relying on a written one but having some sort of video conference to discuss it. And maybe you-all feel like it is not necessary and that is -- but I think the evidence might point to the contrary and --

MR. MILLER: Your Honor, I would want to say that, you know, the memorandum that Mr. Barnes drafted that was distributed by the elections director, that is not in a vacuum. They conduct monthly webinars. They send various instructions through Firefly. And those kind of things just haven't come into evidence in this case because it, frankly, wasn't at that point as much of a disputed issue.

We, frankly, thought we were talking about malware on ballot-marking devices. But suffice it to say, Your Honor, that there is a significant amount of additional kind of guidance and instructive material to the county superintendents throughout the election process through webinars and things of that nature.

THE COURT: Well --

MR. MILLER: And it touches on this and other issues. And, again, I could go into things that, frankly, are definitely not an issue in this case as to candidate

qualification challenges, things of that nature.

THE COURT: I think that this case deals with a variety of things that relate to the machine translating the vote cast by the citizen that walks into the booth or cast in a different way. So I'm just -- that is -- I'm just making these comments.

I encourage you because of the way the evidence came in and what it shows. I'm not saying -- I'm not in any way obviously in a position to say that you -- Mr. Miller, that the individual messages haven't gone out.

But the -- I still have the testimony in front of me. I have the January procedures, which are the official procedures from the Secretary of State about doing this -- preparing for an election that were in front of me. And then I have voters as well as others who were on the board -- on the boards' affidavits. So that is what I'm relying on in just mentioning it to you. But, you know --

MR. MILLER: I understand, Your Honor. I'm not trying to add additional evidence now.

THE COURT: I'm talking about the long run here. My interest is not -- you know, even though it is described as I'm interfering, my interest is in seeing that the voting system works and the voters' votes are counted and that there are no screwups on elections that end up having you back in court. That is -- and to deal with the case in front of me and to deal

with it in an honest and straightforward way.

And I wouldn't be having this conference otherwise so I can really understand what is going on. And --

MR. MILLER: We understand.

THE COURT: So this is a change. So that is what I'm dealing with.

I still would -- as soon as you do have the -- whatever the submission is from Pro V&V, I would like it to be submitted on the record so that we have it. And the same thing -- and what the submission is to the EAC.

And if there is any further clarification that is provided on L&A testing, I would like to be notified of that. Because right now I have -- I mean, this is exactly what I'm dealing with. I have to issue an order, and I don't want my order to be inaccurate in any respect factually.

You may contest the conclusions. But I don't want it to be inaccurate. And we have all worked really long enough to know that is a concern always.

All right. Now --

MR. MILLER: Yes, Your Honor. I apologize. And I do just to -- as we started off today, I do just want to reiterate that we are appreciative of that and your attention to this. And, frankly, the Secretary has the same goal of ensuring that the election can go forward in the most efficient and effective manner.

And, Your Honor, we are appreciative and will remain responsive to the Court's requests. But it is truly a -- you know, we are at crunch time. And our local election officials are trying to administer elections while they are performing inspections for the Coalition plaintiffs. Our State election officials are trying to help out. And in practical realities -- and I understand the Court did not intend -- and we did not intend to have a negative tone towards the Court.

THE COURT: All right. We'll look at -- when Ms. Welch gets her transcript out, I'll determine if there are any -- what portions of the video could be made available on the public docket.

I don't want to get myself in another problem with not having a hearing being in public that should be. And that's really again -- and there might be nothing here that is confidential.

But you are welcome to send me, just having participated in this, any of your position about this and about what portion should be in the public or if all of it can be in the public.

If you are going to do that, just simply so I can proceed on a timely basis, I would appreciate your letting me know -- let's see. It is 11:00 today. If you could let us know by 4:00.

MR. RUSSO: Your Honor, are we going to get a copy --

how do we go about doing that? Do we get a copy of the video?

I mean, I do think probably Dr. Coomer's testimony is something that may not need to be public. However, I just want to make sure we understand the process here. We review the video and send something to you or just --

THE COURT: Well, I think at this point I'm not sure we're going to be able to -- I have to find out from IT. If we have the video, we'll give it to you. And if not, you're going to have to just simply go by your recollection -- your joint recollection --

MR. RUSSO: Okay.

THE COURT: -- of counsel there.

MR. RUSSO: You say by 4:00 today?

THE COURT: By 4:00. But I'll let you -- we'll let you know right away whether we can get you a video.

MR. RUSSO: Okay. I didn't know how that -- I have never had a recording.

THE COURT: It is either yes or no that we can do it. All right.

MR. CROSS: Your Honor, could I ask just -- because it is something that may be breaking, we have heard a lot of new information today. Could we just have Dr. Halderman just briefly respond to a couple of points? Because it sounds like this is stuff you are considering for Your Honor's order.

THE COURT: All right. But I would like to release

Mr. Barnes so that he can go back to work, unless you have an objection.

MR. CROSS: No.

MR. BROWN: No objection.

THE COURT: All right. Mr. Barnes, you are -- you can go on with life.

MR. BARNES: Thank you, Your Honor.

THE COURT: All right. Thank you very much.

Go ahead.

MR. MILLER: Your Honor, before Dr. Halderman begins, because I don't want to interrupt, we just do want to state our objection on the record to the continued expansion of the evidence at issue.

THE COURT: Well, I think that to the extent that he has something useful that helps me understand what has been said, I think the plaintiffs have an opportunity to --

MR. RUSSO: It may be -- you know, to the extent that Dr. Coomer needs to listen to this -- and I don't know --

THE COURT: You can show -- you are welcome to try to reach Dr. Coomer. But it seemed like he had a conflict.

MR. RUSSO: I guess I could show him the video maybe.

THE COURT: Or you could get Ms. Welch --

MR. RUSSO: And he could respond to any --

THE COURT: You could see if you could get her to give you just his portion of the testimony.

MR. RUSSO: Okay. I just want to make sure we get to respond since there was a disputed issue earlier between the two.

THE COURT: Ms. Welch, are you able just to -- just produce Mr. Halderman's -- we don't know how long it is. But let's say it is 20 minutes. Are you able to do that -- turn that around fairly quickly?

COURT REPORTER: I can turn it all around very quickly, Judge. Whatever they ask of me, I do.

(There was a brief pause in the proceedings.)

THE COURT: All right. We'll get it to you one way or the other. Very good.

Can we unmute Dr. Halderman?

DR. HALDERMAN: Hello. Can you hear me, Your Honor?

THE COURT: Yes.

Mr. Cross, did you want to structure this and give him some questions?

MR. CROSS: Yeah. I mean, I think he's been listening.

Probably the easiest way is: Dr. Halderman, it sounds like there are a few points that you had to respond to. Go ahead.

DR. HALDERMAN: Yes, of course. And however I can be helpful to the Court in this manner.

First, just to respond to the point that Dr. Coomer

made about my suggestion in my most recent affidavit that procedural remedies could cure this problem, I think his response seems to indicate that the problem that we're attempting to or the State is attempting to fix here is a complex one, that it is possible to reproduce it but reproducing it reliably, he testified, requires operating with a simpler version of the ballot.

And that just gives me further concern about whether the software fix can be adequately tested given the time that is available.

Now, beyond that, I would like to reiterate the substance of the security concerns that I have. We have to be clear that even if the change to the source code is a small one, as Dominion says it is, the process of updating this software requires replacing completely the core of the Dominion software on every BMD.

We know that because the update instructions are to uninstall the APK, that is, the package that contains almost all of the Dominion software that runs on the ballot-marking device, and install a new APK, a new copy of all of that software.

So this is, frankly, quite alarming from a security perspective. Replacing the BMD software at this juncture so close to the election is an ideal opportunity for attackers who might want to infiltrate the machines.

If attackers have gained access to Dominion's systems, to Pro V&V's systems, to the CES systems, or to the county systems that are going to be creating and distributing this software change, that would be an opportunity for the attackers to subvert the software that runs on election day. And, frankly, none of the procedures I have heard described here today would be adequate to stop that.

So beyond the security questions, the change at this point seriously concerns me from an accuracy and correctness standpoint. As I said, the software change is fixing a problem that is complex to reproduce. It is difficult to test to ensure that the fix actually does correct that problem and that -- and it is virtually impossible at this last minute to thoroughly test that it doesn't create new problems.

So quite often last-minute changes to complex systems do create other unknown consequences. And while the previous version of the BMD software at least had been tested through use in elections, as Dr. Coomer testified millions of voters in aggregate, this new software has only existed for a matter of days.

I myself personally have spent more time testing the old version of the software than anyone has spent testing the new version of the software because it has only existed for such a short time.

Pro V&V hasn't even had an opportunity to write up

its findings. Those finding have not been reviewed by EAC, which has introduced this de minimis testing categorization for emergency fixes in small -- that are small in nature. But the State isn't even following that -- that special case process that has been put in place by EAC. It seems that that process itself is being circumvented. It just seems quite extreme in -- under these circumstances to forgo even that level of compliance.

I wanted to just briefly address the L&A procedures that we heard described. I think two key points about that are that the L&A testing we have heard about would be trivial for malware to detect and bypass. It has a very clear signature that the BMD can see, that ballots are being printed, that are being marked in the same position across every race.

It would be absolutely simple if you were programming malware for the BMDs to have it avoid cheating on ballots that are marked in the same position across each race.

So the security value of this L&A testing is minimal. And we have also heard -- and I think this point came out clearly for the first time today -- that the L&A testing isn't even checking to make sure that each BMD correctly produces a ballot for each -- for the entire set of candidates in every race.

You don't have to test necessarily every permutation of candidates in order to check that. But the least that I

would expect from an L&A procedure would be that it checks that each BMD can correctly mark a ballot for each candidate.

And as we have heard today, because of the length of the Senate race, many BMDs apparently will not even be tested to make sure that they can print a ballot that is marked for each candidate in the presidential race. And that concerns me because a particular BMD might have a corrupted somehow copy of the database -- of the programming that goes into it.

And the L&A procedures, as described, because they don't involve printing a ballot from each BMD that has been marked for every candidate, wouldn't be able to pick up that problem. You have to actually test that each candidate has been marked and can be tabulated correctly.

THE COURT: Wait a second.

DR. HALDERMAN: Apparently someone is sawing on the outside of my building, and I may have to quickly move to another room.

But I think I have addressed the points that I had in mind. But I'm very happy to answer any questions.

MR. CROSS: Dr. Halderman, just a couple of follow-up questions. And the Court may have questions or Mr. Russo.

In your experience looking at elections over the years, is there any election that comes to mind where a state was replacing the software with new software less than two weeks before the --

DR. HALDERMAN: No, nothing comes to mind. This is -- this is not a typical procedure to be going through. In an emergency, perhaps you would need to. But even then, it would be an extremely risky thing to be doing both from a correctness standpoint and from a security standpoint.

MR. CROSS: And just two final questions. Are there real world examples you have seen where a software change that even had been fully vetted and was intended to fix one discrete problem that that then had unintended consequences that were quite significant?

DR. HALDERMAN: Well, the most significant recent example, of course, is the 737 MAX aircraft where after most of the testing had been completed Boeing introduced what they believed was a relatively small design change to the control system that they didn't believe needed to be rigorously tested because it was the equivalent of de minimis.

But that unfortunately reportedly had fatal consequences and has been tied to crashes that have killed several hundred people. But I think that is an illustration. I think it is a good parallel because both the Georgia election system and the aircraft are examples of complex software systems.

Georgia's election system is millions of lines of source code that are in the Dominion products. And for that reason, small, even seemingly trivial changes can have

consequences that are difficult to understand.

It is just -- it is why we normally in the voting system testing and certification process demand such extended testing for accuracy. That kind of testing can't necessarily rule out security problems. But it does a lot to help ensure that votes are going to be counted correctly in the absence of an attacker.

And it is those processes that are being bypassed here and substituted with apparently less than a week of -- of very rapid-fire testing of some sort. Nothing like the testing that goes into a voting system in the course of a normal software change.

MR. CROSS: Last question, Dr. Halderman. You mentioned that the LAT, the logic and accuracy testing --

(There was a brief pause in the proceedings.)

MR. CROSS: Dr. Halderman, you said that there is a clear signature of testing under this L&A process. For example, the candidates are selected in the same position.

DR. HALDERMAN: Yes.

THE COURT: Does anyone have somebody speaking in the background?

(There was a brief pause in the proceedings.)

MR. CROSS: It seems like it got quieter. Is this better?

Okay. Let me try it again.

Dr. Halderman, the question was: You said that there is a clear signature for the machine to see that it is being tested during the logic and accuracy testing. One example, of course, is all the candidates are in the same position; right? They are all selected in Position 3.

Just to show the Court this is not a hypothetical concern, that the malware can trick the machine during testing, is there a real world example of where that has happened?

DR. HALDERMAN: Of where malware would -- of malware detecting such a thing?

MR. CROSS: Yes. Testing and then --

DR. HALDERMAN: Detecting testing. Well, of course, the prominent example of that is the BMW -- excuse me -- the Volkswagen emissions testing scandal, Dieselgate scandal, where Volkswagen programmed its emission systems to detect -- they were going through EPA testing and emit less pollutants under those circumstances.

So the parallel here is detect that the ballot has been marked in the same position across all races and in that case don't cheat; otherwise, cheat with some probability. That would be -- for malware running on a BMD, that would be absolutely a simple thing to program.

MR. CROSS: Thank you, Your Honor.

THE COURT: Let me just make sure I understand from your perspective what this meant in terms of the testing

that -- in terms of the printing of ballots. Any time -- any ballots -- let's say that there were -- because we were using the example previously of four, that there would not be ballots printed with -- that would reflect any other ballot choices as you -- as they -- for any of the -- any of the times where people had cast ballots for candidates five and onward.

DR. HALDERMAN: Yes, Your Honor. My understanding of the testimony we heard today is that one BMD would be used to print a ballot marked in the first position across every race, another the second position, another the third position, et cetera and that races that had fewer than that number of positions the race would just be left blank on the BMD that was being tested.

So each BMD produces one printout that is marked in one equivalent position across every race. And that, of course, has the problem that for a given BMD most of the possible positions that could be marked are not going to be exercised all the way through being printed and being tabulated.

So if a particular BMD has a database that is somehow corrupted and programmed differently from the other BMDs under testing, the problem would not be discovered.

THE COURT: All right. Anything else, Counsel?

MR. CROSS: Not for us, Your Honor. This is David Cross. If they want to ask questions, they are welcome to.

MR. RUSSO: Your Honor, I don't think we have any questions.

THE COURT: All right. Well, thank you-all very much.

MR. CROSS: Your Honor, I'm sorry. There was one final thing that we wanted to clear up if we could. Mr. Brown sent an email in this morning. I don't know if you saw it.

THE COURT: No, I did not.

MR. CROSS: We're just trying to confirm -- Mr. Tyson sent in an email indicating that there was a message that went out from Mr. Harvey clarifying that there were no new databases coming out as opposed to a software change. He indicated that message went to the counties on Tuesday. The copies that we have -- we have multiple copies from the counties -- indicated it went yesterday around the same time of Mr. Tyson's email.

Vincent or Carey, do you know when that actually went out to the counties?

MR. RUSSO: I mean, I believe that it is -- so we looked at it earlier -- what Bruce sent. Buzz is a webface. It is a web portal. So I think Mr. Harvey posted it on Buzz in accordance with what Mr. Tyson represented. And the email went out the following day due to however Buzz, the program, populates the email that automatically goes out.

MR. CROSS: Okay. Thank you.

That is all, Your Honor. Thank you.

THE COURT: All right. Thank you very much. And we'll be -- we'll be in touch. I mean, I'm trying to get an order out this week. So I appreciate everyone scurrying to get this in front of me.

MR. CROSS: Thank you, Your Honor.

MR. RUSSO: Thank you, Your Honor.

(The proceedings were thereby concluded at 11:32 A.M.)

C E R T I F I C A T E

UNITED STATES OF AMERICA

NORTHERN DISTRICT OF GEORGIA

I, SHANNON R. WELCH, RMR, CRR, Official Court Reporter of the United States District Court, for the Northern District of Georgia, Atlanta Division, do hereby certify that the foregoing 76 pages constitute a true transcript of proceedings had before the said Court, held in the City of Atlanta, Georgia, in the matter therein stated.

In testimony whereof, I hereunto set my hand on this, the 1st day of October, 2020.

Shannon R. Welch

SHANNON R. WELCH, RMR, CRR
OFFICIAL COURT REPORTER
UNITED STATES DISTRICT COURT

Exh. 5

OFFICE OF SECRETARY OF STATE

I, Brad Raffensperger, Secretary of State of the State of Georgia, do hereby certify that

the Dominion Voting System (EAC Certification Number DVS-DemSuite5.5-A), consisting of the Democracy Suite 5.5-A Election Management System Version 5.5.12.1, EMS Adjudication Version 5.5.8.1, ImageCast X Prime (ICX BMD) Ballot Marking Device Version 5.5.10.30, ImageCast Precinct (ICP) Precinct Scanning Device Version 5.5.3-0002, and ImageCast Central (ICC) Central Scanning Device Version 5.5.3-0002, manufactured by Dominion Voting Systems, Inc., 1201 18th Street, STE 210, Denver, Colorado 80202, has been thoroughly examined and tested and found to be in compliance with the applicable provisions of the Georgia Election Code and Rules of the Secretary of State, and as a result of this inspection, it is my opinion that this kind of voting system and its components can be safely used by the electors of this state in all primaries and elections as provided in Chapter 2 of Title 21 of the Official Code of Georgia; provided however, that I hereby reserve my opinion to reexamine this voting system and its components at anytime so as to ensure that it continues to be one that can be safely used by the voters of this state.

Exh. 6

PRO V&V

VERIFICATION VALIDATION

Test Report

Dominion Voting Systems
D-Suite 5.5-A Voting System
Georgia State Certification Testing

Approved by: Michael L. Walker

Michael Walker, VSTL Project Manager

1 INTRODUCTION

The purpose of this Test Report is to document the procedures that Pro V&V, Inc. followed to perform certification testing of the Dominion Voting Systems D-Suite 5.5-A Voting System Voting System to the requirements set forth for voting systems in the State of Georgia Election Systems Certification Program.

1.1 Authority

The State of Georgia has a unified voting system whereby all federal, state, and county elections are to use the same voting equipment. Beginning in 2020, the unified voting system shall be an optical scanning voting system with ballot marking devices.

The Georgia Board of Elections, under the authority granted to it by the Georgia Election Code, has the duty to promulgate rules and regulations to obtain uniformity in the practices and procedures of local election officials as well as to ensure the fair, legal, and orderly conduct of primaries and elections. The Georgia Board of Elections is to investigate frauds and irregularities in primaries and elections and report violations for prosecution. It can issue orders, after the completion of appropriate proceedings, directing compliance with the Georgia Election Code.

The Georgia Secretary of State is designated as the Chief Election Official and is statutorily tasked with developing, programing, building, and reviewing ballots for use by counties and municipalities on the unified voting system in the state. The Georgia Election Code provides that the Secretary of State is to examine and approve an optical scanning voting system and ballot marking devices prior to their use in the state. County Boards of Elections (CBE) may only use an optical scanning voting system and ballot marking devices that have been approved and certified and that may be continuously reviewed for ongoing certification, by the Secretary of State. The Secretary of State has authority to decertify voting systems. The Secretary of State has promulgated rules and regulations that govern the voting system certification process.

1.2 References

The documents listed below were utilized in the development of this Test Report:

- Election Assistance Commission Testing and Certification Program Manual, Version 2.0
- Election Assistance Commission Voting System Test Laboratory Program Manual, Version 2.0

- National Voluntary Laboratory Accreditation Program NIST Handbook 150, 2016 Edition, "NVLAP Procedures and General Requirements (NIST HB 150-2016)", dated July 2016
- National Voluntary Laboratory Accreditation Program NIST Handbook 150-22, 2008 Edition, "Voting System Testing (NIST Handbook 150-22)", dated May 2008
- Pro V&V, Inc. Quality Assurance Manual, Revision 7.0
- United States 107th Congress Help America Vote Act (HAVA) of 2002 (Public Law 107-252), dated October 2002
- Dominion Voting Systems D-Suite 5.5-ATechnical Data Package

1.3 Terms and Abbreviations

The terms and abbreviations applicable to the development of this Test Plan are listed below:

"BMD" – Ballot Marking Device

"COTS" – Commercial Off-The-Shelf

"EAC" – Election Assistance Commission

"EMS" – Election Management System

"FCA" – Functional Configuration Audit

"PCA" – Physical Configuration Audit

"TDP" – Technical Data Package

"VSTL" – Voting System Test Laboratory

"2005 VVSG" – EAC 2005 Voluntary Voting Systems Guidelines

1.4 Background

The State of Georgia identified the Dominion Voting Systems D-Suite 5.5-A Voting System to be evaluated as part of this test campaign. This report documents the findings from that evaluation.

functions, which are essential to the conduct of an election in the State of Georgia, were evaluated.

The scope of this testing event incorporated a sufficient spectrum of physical and functional tests to verify that the D-Suite 5.5-A Voting System conformed to the State of Georgia requirements. Specifically, the testing event had the following goals:

- Ensure proposed voting systems provide support for all Georgia election management requirements (i.e. ballot design, results reporting, recounts, etc.).

- Simulate pre-election, Election Day, absentee, recounts, and post-election activities on the corresponding components of the proposed voting systems for the required election scenarios.

2 TEST CANDIDATE

The D-Suite 5.5-A Voting System is a paper-based optical scan voting system consisting of the following major components: The Election Management System (EMS), the ImageCast Central (ICC), the ImageCast Precinct (ICP), and the ImageCast X (ICX) BMD. The D-Suite 5.5-A Voting System configuration is a modification from the EAC approved D-Suite 5.0 system configuration. The D-Suite 5.5-A Voting System will be configured with the KNOWiNK Pollpad which utilizes the ePulse Epoll data management system, for voter registration purposes.

The following table provides the software and hardware components of the D-Suite 5.5-A Voting System that were tested, identified with versions and model numbers:

Table 2-1 D-Suite 5.5-A Voting System

D-Suite 5.5-A Voting System Component	Firmware/Software Version	Hardware Model
Software Applications		
EMS Election Event Designer (EED)	5.5.12.1	---
EMS Results Tally and Reporting (RTR)	5.5.12.1	---
EMS Application Server	5.5.12.1	---
EMS File System Service (FSS)	5.5.12.1	---
EMS Audio Studio (AS)	5.5.12.1	---
EMS Data Center Manager (DCM)	5.5.12.1	---
EMS Election Data Translator (EDT)	5.5.12.1	---
ImageCast Voter Activation (ICVA)	5.5.12.1	---

Table 2-1 D-Suite 5.5-A Voting System *(continued)*

D-Suite 5.5-A Voting System Component	Firmware/Software Version	Hardware Model
Device Configuration File (DCF)	5.4.01_20170521	---
Polling Place Scanner (PPS) and Peripherals		
ImageCast Precinct (ICP)	5.5.3-0002	PCOS-320C
ICP Ballot Box	---	BOX-330A
EMS Standard Configuration		
Dell Server R640	---	R640
Dell Precision 3430	---	3430
Dell Network Switch	---	X10206P
EMS Express Configuration		
Dell Precision 3420	---	3420
Dell Monitor	---	P2419H
Dell Network Switch	---	X1008
Central Scanning Device (CSD) Components		
ImageCast Central	5.5.3.0002	---
Canon DR-G1130 Scanner	---	DR-G1130
Canon DR-M160II Scanner	---	DR-M160II
Dell Optiplex 3050AIO Computer	Windows 10 Pro	3050AIO
ADA Compliant Ballot Marking Device		
Avalue ImageCast X Prime 21" BMD	5.5.10.30	HID-21V
HP M402dne Printer	---	M402dne
ePollbook Solution		
KNOWiNK Poll Pad	---	iPad Air Rev. 2
KNOWiNK ePulse Epoll Data Management System	---	---

2.1 Testing Configuration

The following is a breakdown of the D-Suite 5.5-A Voting System components and configurations for the test setup:

Standard Testing Platform (D-Suite 5.5-A):

The system will be configured in the EMS Standard configuration with an Adjudication

The precinct polling station setup will consist of ImageCast X Prime 21" BMD's and ImageCast Precinct tabulators with plastic ballot boxes. The ImageCast X Prime 21" BMD's will be set up as accessible voting stations.

The KNOWiNK Epollbook solution consisting of the Poll Pad and ePulse Epoll data management system, will be setup and interfaced as required with the EMS Standard configuration.

Dominion Voting Systems is expected to provide all previously identified software and equipment necessary for the test campaign along with the supporting materials listed in section 2.2. The State of Georgia is providing the election definitions and ballots.

Express Testing Platform (D-Suite 5.5-A):

The system will be configured in the EMS Express configuration. This platform will be used to test all scenarios as provided by the election definition.

The central office setup will be an EMS Express configuration accompanied by both Canon DR-G1130 and Canon DR-M160II Central Scan tabulators and their associated PC's.

The precinct polling station setup will consist of ImageCast X Prime 21" BMD's and ImageCast Precinct tabulators with plastic ballot boxes. The ImageCast X Prime 21" BMD's will be set up as accessible voting stations.

The KNOWiNK Epollbook solution consisting of the Poll Pad and ePulse Epoll data management system, will be setup and interfaced as required with the EMS Standard configuration.

Dominion Voting Systems provided all previously identified software and equipment necessary for the test campaign along with the supporting materials ,election definitions, and ballots

2.2 Test Support Equipment/Materials

The following materials, if required, were supplied by Dominion Voting Systems to facilitate testing:

- USB Flash Drives

- Ballot Paper
- Marking Devices
- Pressurized air cans
- Lint-free cloth
- Cleaning pad and isopropyl alcohol
- Labels
- Other materials and equipment as required

3 TEST PROCESS AND RESULTS

The following sections outline the test process that was followed to evaluate the D-Suite 5.5-A Voting System under the scope defined in Section 1.5.

3.1 General Information

All testing was conducted under the guidance of Pro V&V by personnel verified by Pro V&V to be qualified to perform the testing. The examination was performed at the Pro V&V, Inc. test facility located in Cummings Research Park, Huntsville, AL.

3.2 Testing Initialization

Prior to execution of the required test scenarios, the systems under test underwent testing initialization to establish the baseline for testing and ensure that the testing candidate matched the expected testing candidate and that all equipment and supplies were present.

The following were completed during the testing initialization:

- Ensure proper system of equipment. Check connections, power cords, keys, etc.
- Check version numbers of (system) software and firmware on all components.
- Verify the presence of only the documented COTS.
- Ensure removable media is clean
- Ensure batteries are fully charged.
- Inspect supplies and test decks

- Retain proof of version numbers.

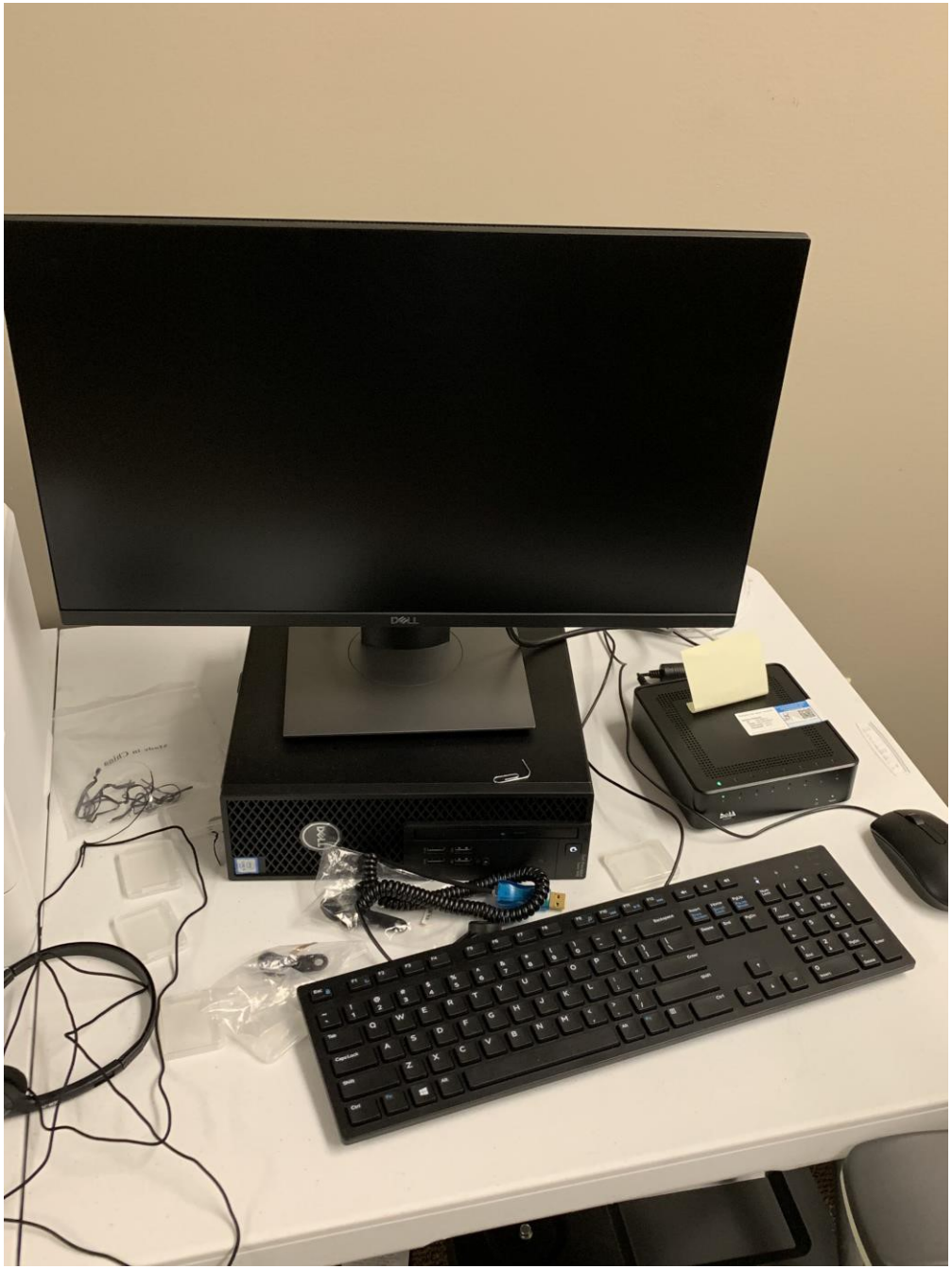
3.3 Summary Findings

The voting system was evaluated against the requirements set forth for voting systems by the State of Georgia. A Conditions of Satisfaction Checklist was developed based on each identified test requirements. Throughout the test campaign, Pro V&V executed tests, inspected resultant data and performed technical documentation reviews to ensure that each applicable requirement was met. The Conditions of Satisfaction Checklist is presented in Section 4 of this test report. The Summary Findings from each area of evaluation are presented in the following sections.

3.3.1 Physical Configuration Audit (PCA) and Setup

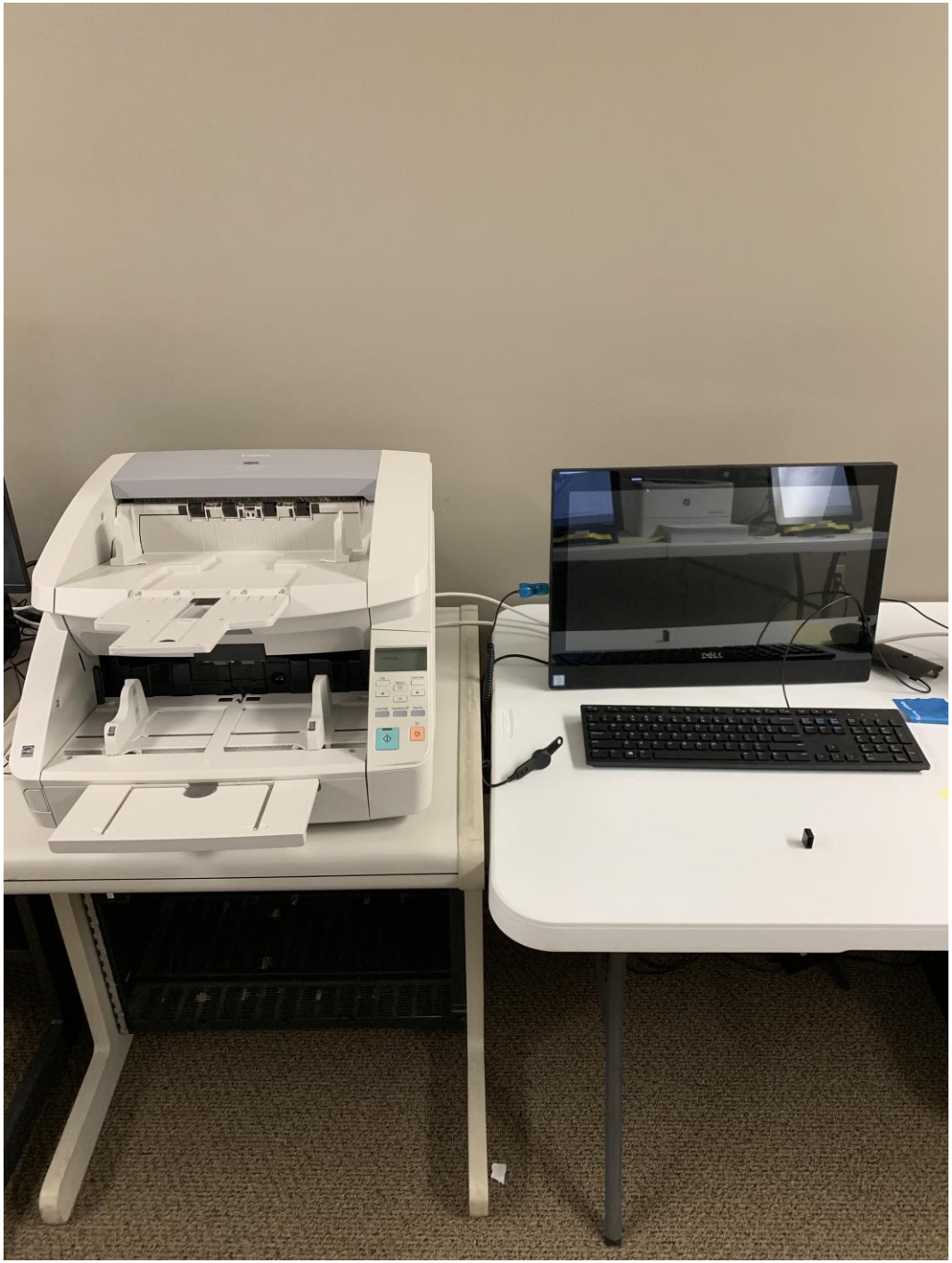
Prior to test initiation, the D-Suite 5.5-A Voting System was subjected to a Physical Configuration Audit (PCA) to baseline the system and ensure all items necessary for testing were present. This process included validating that the hardware and software components received for testing matched hardware and software components proposed and demonstrated to the State during the RFP process. This process also included validating that the submitted components matched the software and hardware components which have obtained EAC certification to the Voluntary Voting System Guidelines (VVSG) Standard 1.0, by comparing the submitted components to the published EAC Test Report. The system was then setup as designated by the manufacturer supplied Technical Documentation Package (TDP).

Photographs of the system components, as configured for testing, are presented below:

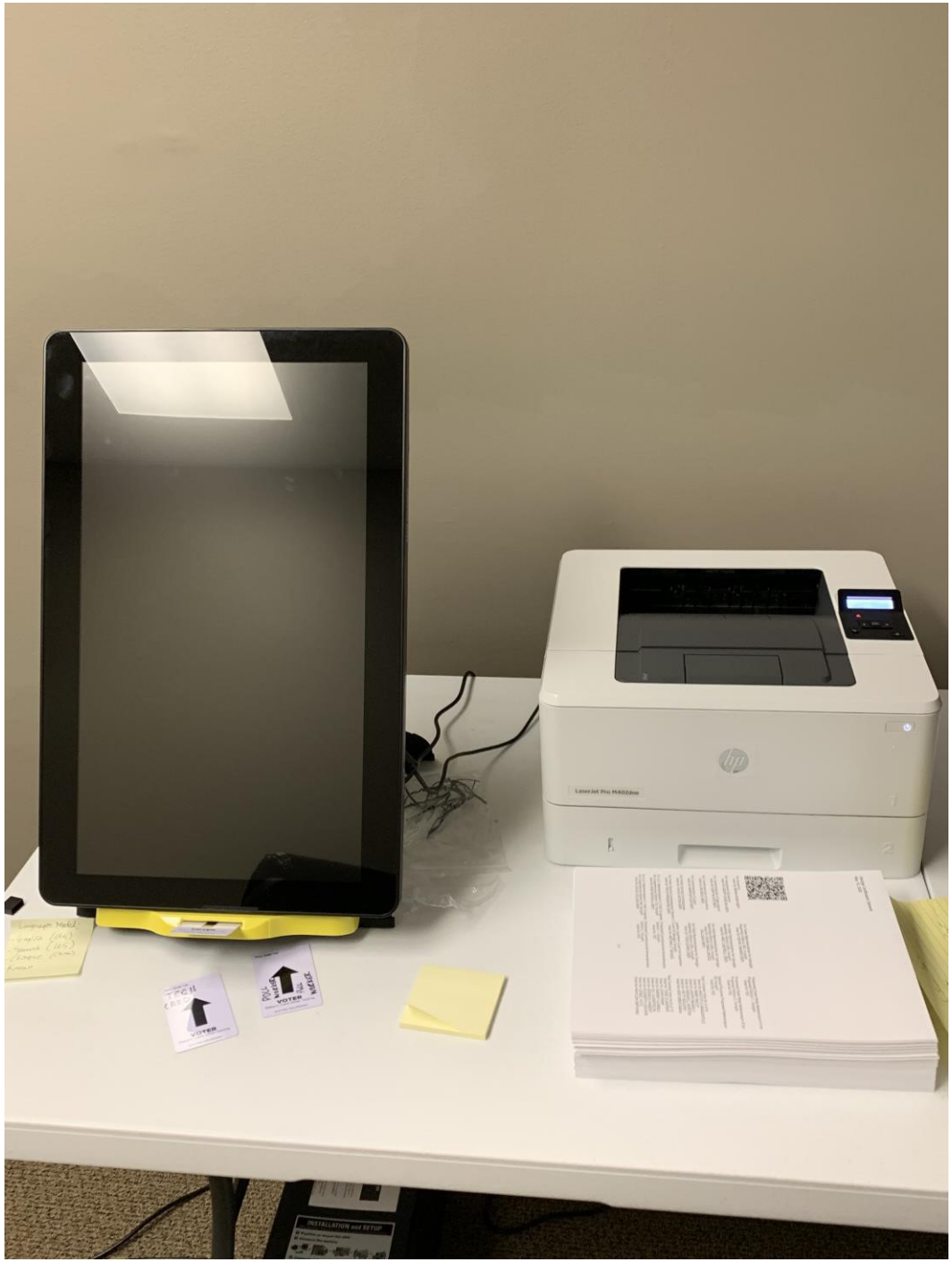


Photograph 1: EMS Express Configuration

Photograph 2: EMS Standard Configuration



DELL
Canon


VOTER
VOTER

Photograph 6: ePollbok

A pre-certification election was then loaded and an Operational Status Check was performed to verify satisfactory system operation. The Operational Status Check consisted of processing ballots and verifying the results obtained against known expected results from pre-determined

Summary Findings

During execution of the test procedure, the components of the D-Suite 5.5-A system were documented by component name, model, serial number, major component, and any other relevant information needed to identify the component. For COTS equipment, every effort was made to verify that the COTS equipment had not been modified for use. Additionally, the Operational Status Check was successfully completed with all actual results obtained during test execution matching the expected results.

3.3.2 System Level Testing

System Level Testing included the Functional Configuration Audit (FCA), the Accuracy Test, the Volume and Stress Test, and the System Integration Test. This testing included all proprietary components and COTS components (software, hardware, and peripherals).

During System Level Testing, the system was configured exactly as it would for normal field use per the manufacturer. This included connecting the supporting equipment and peripherals.

3.3.2.1 Functional Configuration Audit (FCA)

The Functional Configuration Audit (FCA) encompassed an examination of the system to the requirements set forth by the State of Georgia Election Systems Certification Program as designed in the Test Plan, and which are included in this report in the Conditions of Satisfaction Checklist.

Summary Findings

The D-Suite 5.5-A system successfully passed the FCA Tests without any noted issues. The individual testing requirements and their results can be seen in the included Conditions of Satisfaction Checklist.

3.3.2.2 Accuracy Testing

The Accuracy Test ensured that each component of the voting system could process at least 1,549,703 consecutive ballot positions correctly within the allowable target error rate. The Accuracy Test is designed to test the ability of the system to “capture, record, store, consolidate and report” specific selections and absences of a selection. The required accuracy is defined as

Summary Findings

The D-Suite 5.5-A system successfully passed the Accuracy Test. It was noted during test performance that the ICP under test experienced a memory lockup after scanning approximately 4500 ballots. The issue was presented to Dominion for resolution. Dominion provided the following analysis of the issue:

The ICP uClinux operating system does not have a memory management unit (MMU) and, as such, it can be susceptible to memory fragmentation. The memory allocation services within the ICP application are designed to minimize the effects of memory fragmentation. However, if the ICP scans a large number of ballots (over 4000), without any power cycle, it can experience a situation where the allocation of a large amount of memory can fail at the Operating System level due to memory fragmentation across the RAM. This situation produces an error message on the ICP which requires the Poll Worker to power cycle the unit, as documented. Once restarted, the ICP can continue processing ballots without issue. All ballots scanned and counted prior to the power cycle are still retained by the unit; there is no loss in data.

Pro V&V performed a power cycle, as instructed by Dominion, and verified that the issue was resolved and that the total ballot count was correct. Scanning then resumed with no additional issues noted.

A total of 1,569,640 voting positions were processed on the system with all actual results verified against the expected results. The individual testing requirements and their results can be seen in the included Conditions of Satisfaction Checklist.

3.3.2.3 Volume and Stress Testing

The Volume & Stress Tests consisted of tests designed to investigate the system's ability to meet the requirement limits and conditions set forth by the State of Georgia Election Systems Certification Program as designed in the Test Plan, and which are included in this report in the Conditions of Satisfaction Checklist.

Summary Findings

The D-Suite 5.5-A system successfully passed the Volume and Stress Tests without any noted issues. The individual testing requirements and their results can be seen in the included

3.3.2.4 System Integration Test

System Integration is a system level test that evaluates the integrated operation of both hardware and software. System Integration tests the compatibility of the voting system software components, or subsystems, with one another and with other components of the voting system environment. This functional test evaluates the integration of the voting system software with the remainder of the system.

During test performance, the system was configured as it would be for normal field use, with a new election created on the EMS and processed through the system components to final results.

Summary Findings

The D-Suite 5.5-A system successfully passed the System Integration Test without any noted issues. The individual testing requirements and their results can be seen in the included Conditions of Satisfaction Checklist.

3.3.3 e-Pollbook Testing

The ePolllbook Test evaluated the ability of the designated ePollbook to produced voter activation cards that could be successfully processed by the BMD.

Summary Findings

The D-Suite 5.5-A system successfully passed the ePollbook Test without any noted issues. The individual testing requirements and their results can be seen in the included Conditions of Satisfaction Checklist.

3.3.4 Ballot Copy Testing

The Ballot Copy Test evaluated the ability of a photocopy of a ballot produced by the system to be successfully processed by the system's tabulators.

Summary Findings

The D-Suite 5.5-A system successfully passed the Ballot Copy Test without any noted issues. The individual testing requirements and their results can be seen in the included Conditions of

3.3.5 Trusted Build and Software Hash Delivery

At test campaign conclusion, HASH signatures and software installation packets of the tested software were generated for delivery to the State of Georgia.

4 Conditions of Satisfaction

The voting system was evaluated against the requirements set forth for voting systems by the EAC 2005 VVSG and the State of Georgia. Throughout this test campaign, Pro V&V executed tests, inspected resultant data and performed technical documentation reviews to ensure that each applicable requirement was met. The Conditions of Satisfaction Checklist developed for this test campaign is presented in Table 4-1.

Table 4-1 Conditions of Satisfaction Checklist

DOMINION Conditions of Satisfaction Checklist		
Area	**Condition**	**Test Result**
FCA	Single FCA Test Election database(s) containing Republican and Democratic Primaries (Open Primary) and one Non-Partisan election	PASS
FCA	Database is being built for a single county jurisdiction	PASS
FCA	Republican Primary = 5 Races (1 statewide, 2 countywide, 3 county district level)	PASS
FCA	Democratic Primary = 5 Races (1 statewide, 1 countywide, 1 state district level, 2 county district level)	PASS
FCA	Non-Partisan Election = 1 Race (1 statewide)	PASS
FCA	Republican and Democratic races contain 1 to 8	PASS

Table 4-1 Conditions of Satisfaction Checklist *(continued)*

DOMINION Conditions of Satisfaction Checklist		
Area	**Condition**	**Test Result**
FCA	Non-Partisan race contains 4 candidates and 1 write-in	PASS
FCA	All races are Vote for One	PASS
FCA	County contains 5 Precincts, for results reporting purposes	PASS
FCA	Each precinct is split at both state district and county district level	PASS
FCA	Election Day Voting [4 total], 1 Vote Center containing 2 precincts	PASS
FCA	Election Day Voting [4 total], 3 Polling Locations containing 1 precinct each	PASS
FCA	Advance Voting [2 total], Each polling location houses all 5 Precincts	PASS
FCA	Prepare election media from EMS to program PPS's (Polling Place Scanners) and BMD's for Advance Voting Polling locations	PASS
FCA	Prepare election media from EMS to program PPS's and BMD's for Election Day Polling locations	PASS
FCA	Prepare election media from EMS to program CSD's (Central Scan Devices) system for processing of mail-out absentee ballots and provisional ballots	PASS

Table 4-1 Conditions of Satisfaction Checklist *(continued)*

DOMINION Conditions of Satisfaction Checklist		
Area	**Condition**	**Test Result**
FCA	Prepare election media from EMS to program CSD's for processing Advance Voting ballots generated by BMDs	PASS
FCA	Prepare election media from EMS to program CSD's for processing Election Day ballots generated by BMDs	PASS
FCA	Produce watermarked Sample ballots for public distribution	PASS
FCA	Prepare a test deck (Deck 1) of voted ballots with a known result using all available vote positions on all ballot styles generated by the test scenario, including write-ins, overvotes, undervotes, and blank ballots.	PASS
FCA	Prepare an Absentee test deck (Deck 2) of voted absentee ballots with a known result, to be used on the CSD, including write-ins, overvoted races, and blank ballots.	PASS
FCA	Vote test deck (Deck 1) on each BMD and print BMD ballots for each ballot in the test deck	PASS
FCA	Scan ballots created from the BMD's into the associated PPS's	PASS
FCA	Scan the Absentee test deck (Deck 2) on the CSD and confirm the CSD separates ballots by various conditions for physical review when scanning (i.e..	PASS

Table 4-1 Conditions of Satisfaction Checklist *(continued)*

DOMINION Conditions of Satisfaction Checklist		
Area	**Condition**	**Test Result**
FCA	Prepare printouts from PPS's documenting results tabulated and verify them against test deck	PASS
FCA	Prepare printouts from CSD documenting results tabulates and verify them against test deck	PASS
FCA	Scan ballots created from BMD's on the CSD	PASS
FCA	Prepare printouts from CSD documenting results tabulated and verify them against Absentee test deck (Deck 2)	PASS
FCA	Upload to EMS the election media used in PPS and CSD devices	PASS
FCA	Prepare printouts from EMS documenting the results tabulated and verify them against test deck contents	PASS
FCA	Prepare printouts documenting results at various reporting levels:	PASS
FCA	Prepare printouts documenting results at various reporting levels: Precinct	PASS
FCA	Prepare printouts documenting results at various reporting levels: Polling Place	PASS
FCA	Prepare printouts documenting results at various reporting levels: vote Type	PASS

Table 4-1 Conditions of Satisfaction Checklist *(continued)*

DOMINION Conditions of Satisfaction Checklist		
Area	**Condition**	**Test Result**
Accuracy	General election	PASS
Accuracy	21 Contests in election	PASS
Accuracy	2 Column Ballot	PASS
Accuracy	5 Precincts	PASS
Accuracy	Election is produced at County Level	PASS
Accuracy	No Counting Groups	PASS
Accuracy	Incumbency is supported	PASS
Accuracy	No Straight Party Voting	PASS
Accuracy	Non-Partisan contests only (Candidates are not directly linked to parties, but are labeled by party on the ballot)	PASS
	Parties (for labeling purposes): o Democratic	PASS

Table 4-1 Conditions of Satisfaction Checklist *(continued)*

DOMINION Conditions of Satisfaction Checklist		
Area	**Condition**	**Test Result**
Accuracy	Write-Ins present in all races	PASS
Accuracy	Proposed State Wide Referendums	PASS
Accuracy	Advance Voting (Early Voting)	PASS
Accuracy	Elections for Judges are Non-Partisan	PASS
Accuracy	N of M Voting o Test N of M – 6 of 8 o Test N of M – 8 of 10	PASS
Accuracy	1000 Ballots printed from BMD using 3 units as follows (Unit 1: 250 ballots, unit 2: 250 ballots, unit 3: 500 ballots)	PASS
Accuracy	Run the Accuracy Test Election on BMD & Verify results against known expected results	PASS
Accuracy	Run the Accuracy Test Election on PPS & Verify results against known expected results	PASS
Accuracy	Run the Accuracy Test Election on CSD & Verify results against known expected results	PASS
Accuracy	Reporting: Winners: Contest reports review	PASS

Table 4-1 Conditions of Satisfaction Checklist *(continued)*

DOMINION Conditions of Satisfaction Checklist		
Area	**Condition**	**Test Result**
Accuracy	Election Night Reporting: Export Election Night Results in the following formats: o Common Data Format (CDF)	PASS
Accuracy	Election Night Reporting: Export Election Night Results in the following formats: o Non-CDF	PASS
Accuracy	Accuracy in ballot counting and tabulation shall achieve 100% for all votes cast (1,549,703 ballot positions)	PASS
V&S	Volume & Stress Open Primary Election	PASS
V&S	400 Precincts	PASS
V&S	1 County	PASS
V&S	150 Ballot Styles	PASS
V&S	30 Ballot Styles in 1 Precinct	PASS
V&S	3 Languages (English, Spanish, Korean)	PASS
		PASS

Table 4-1 Conditions of Satisfaction Checklist *(continued)*

DOMINION Conditions of Satisfaction Checklist		
Area	**Condition**	**Test Result**
V&S	30 candidates in 1 contest	PASS
V&S	Referendum (Approximately 15000 words)	PASS
V&S	Referendum: Test using 10pt Arial Font (Currently used in State of Georgia)	PASS
V&S	Referendum: Test using 12pt Sans Serif font (To Accommodate future changes)	PASS
V&S	Referendum: Verify at Normal Size	PASS
V&S	Referendum: Verify when Zoomed-In (Text size increased)	PASS
V&S	Candidate Name Lengths – (Must support 25 characters) – Verify to make sure they display properly	PASS
V&S	Candidate Name Lengths – Check Translations	PASS
V&S	Candidate Name Lengths – Check appearance on BMD Printed Ballot	PASS
V&S	Candidate Name Lengths – Check appearance on Ballot Review Screen	PASS

Table 4-1 Conditions of Satisfaction Checklist *(continued)*

DOMINION Conditions of Satisfaction Checklist		
Area	**Condition**	**Test Result**
V&S	Tabulator Reports – Tabulators print 3 copies of Zero Proof Reports, and Results Reports	PASS
V&S	Run the V&S Test Election on BMD & Verify results against known expected results	PASS
V&S	Run the V&S Test Election on PPS & Verify results against known expected results	PASS
V&S	Run the V&S Test Election on CSD & Verify results against known expected results	PASS
V&S	Reporting: Winners: Contest reports review	PASS
V&S	Reporting: Results: Precinct summary reports, precinct-based reporting, reporting by Congressional District Level	PASS
Epollbook	Verify that the Pollbook can program voter activation cards for BMD	PASS
Epollbook	Verify that voter activation cards activate the correct ballot styles when used on the BMD's	PASS
Ballot Copy	Verify whether or not a ballot produced by the BMD, can be photocopied, and then have the photocopied ballot be successfully cast on:	PASS

Table 4-1 Conditions of Satisfaction Checklist *(continued)*

DOMINION Conditions of Satisfaction Checklist		
Area	**Condition**	**Test Result**
System Integration	Run the SI Test Election on BMD & Verify results against known expected results	PASS
System Integration	Run the SI Test Election on PPS & Verify results against known expected results	PASS
System Integration	Run the SI Test Election on CSD & Verify results against known expected results	PASS
System Integration	Reporting: Winners: Contest reports review	PASS
System Integration	Reporting: Results: Precinct summary reports, precinct-based reporting, reporting by Congressional District Level	PASS

Exh. 7

Accepted for publication in *Election Law Journal*

Ballot-Marking Devices (BMDs) Cannot Assure the Will of the Voters

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February 14, 2020

Abstract

The complexity of U.S. elections usually requires computers to count ballots—but computers can be hacked, so election integrity requires a voting system in which paper ballots can be recounted by hand. However, paper ballots provide no assurance unless they accurately record the votes as expressed by the voters.

Voters can express their intent by indelibly hand-marking ballots, or using computers called ballot-marking device (BMDs). Voters can make mistakes in expressing their intent in either technology, but only BMDs are also subject to hacking, bugs, and misconfiguration of the software that prints the marked ballots. Most voters do not review BMD-printed ballots, and those who do often fail to notice when the printed vote is not what they expressed on the touchscreen. Furthermore, there is no action a voter can take to demonstrate to election officials that a BMD altered their expressed votes, nor is there a corrective action that election officials can take if notified by voters—there is no way to deter, contain, or correct computer hacking in BMDs. These are the essential security flaws of BMDs.

Risk-limiting audits can assure that the votes recorded on paper ballots are tabulated correctly, but no audit can assure that the votes on paper are the ones expressed by the voter on a touchscreen: Elections conducted on current BMDs cannot be confirmed by audits. We identify two properties of voting systems, *contestability* and *defensibility*, necessary for audits to confirm election outcomes. No available EAC-certified BMD is contestable or defensible.

[†]Authors are listed alphabetically; they contributed equally to this work.

1 Introduction: Criteria for Voting Systems

Elections for public office and on public questions in the United States or any democracy must produce outcomes based on the votes that voters *express* when they indicate their choices on a paper ballot or on a machine. Computers have become indispensable to conducting elections, but computers are vulnerable. They can be hacked—compromised by insiders or external adversaries who can replace their software with fraudulent software that deliberately miscounts votes—and they can contain design errors and bugs—hardware or software flaws or configuration errors that result in mis-recording or mis-tabulating votes. Hence there must be some way, *independent* of any software in any computers, to ensure that reported election outcomes are correct, i.e., consistent with the expressed votes as intended by the voters.

Voting systems should be *software independent*, meaning that "an undetected change or error in its software cannot cause an undetectable change or error in an election outcome" [30, 31, 32]. Software independence is similar to tamper-evident packaging: if somebody opens the container and disturbs the contents, it will leave a trace.

The use of software-independent voting systems is supposed to ensure that if someone fraudulently hacks the voting machines to steal votes, we'll know about it. But we also want to know *the true outcome* in order to avoid a do-over election.[1] A voting system is *strongly software independent* if it is software independent and, moreover, a detected change or error in an election outcome (due to change or error in the software) can be corrected using only the ballots and ballot records of the current election [30, 31]. Strong software independence combines tamper evidence with a kind of resilience: there's a way to tell whether faulty software caused a problem, and a way to recover from the problem if it did.

Software independence and *strong software independence* are now standard terms in the analysis of voting systems, and it is widely accepted that voting systems should be software independent. Indeed, version 2.0 of the Voluntary Voting System Guidelines (VVSG 2.0) incorporates this principle [11].

But as we will show, these standard definitions are incomplete and inadequate, because the word *undetectable* hides several important questions: *Who* detects the change or error in an election outcome? How can a person *prove* that she has detected an er-

[1] Do-overs are expensive; they may delay the inauguration of an elected official; there is no assurance that the same voters will vote in the do-over election as voted in the original; they decrease public trust. And if the do-over election is conducted with the same voting system that can only detect but not correct errors, then there may need to be a do-over of the do-over, *ad infinitum.*

ror? *What happens* when someone detects an error—does the election outcome remain erroneous? Or conversely: How can an election administrator *prove* that the election outcome not been altered, or prove that the correct outcome was recovered if a software malfunction was detected? The standard definition does not distinguish evidence available to an election official, to the public, or just to a single voter; nor does it consider the possibility of false alarms.

Those questions are not merely academic, as we show with an analysis of ballot-marking devices. Even if some *voters* "detect" that the printed output is not what they expressed to the BMD—even if some of *those* voters report their detection to election officials—there is no mechanism by which the *election official* can "detect" whether a BMD has been hacked to alter election outcomes. The questions of *who detects, and then what happens,* are critical—but unanswered by the standard definitions.

We will define the terms *contestable* and *defensible* to better characterize properties of voting systems that make them acceptable for use in public elections.[2]

A voting system is *contestable* if an undetected change or error in its software that causes a change or error in an election outcome can always produce *public* evidence that the outcome is untrustworthy. For instance, if a voter selected candidate A on the touchscreen of a BMD, but the BMD prints candidate B on the paper ballot, then this A-vs-B evidence is available to the individual voter, but the voter cannot demonstrate this evidence to anyone else, since nobody else saw—nor should have seen—where the voter touched the screen.[3] Thus, the voting system does not provide a way for the voter who observed the misbehavior to prove to anyone else that there was a problem, even if the problems altered the reported outcome. Such a system is therefore not *contestable*.

While the definition of software independence might allow evidence available only to individual voters as "detection," such evidence does not suffice for a system to be contestable. Contestibility is software independence, plus the requirement that "detect" implies "can generate public evidence." "Trust me" does not count as public evidence. If a voting system is not contestable, then problems voters "detect" might never see the light of day, much less be addressed or corrected.[4]

[2]There are other notions connected to contestability and defensibility, although essentially different: Benaloh et al. [6] define a *P-resilient canvass framework*, *personally verifiable P-resilient canvass framework*, and *privacy-perserving personally verifiable P-resilient canvass frameworks*.

[3]See footnote 17.

[4]If voters are the only means of detecting and quantifying the effect of those problems—as they are for BMDs—then in practice the system is not strongly software independent. The reason is that, as we will show, such claims by (some) voters *cannot* correct software-dependent changes to other voters' ballots, and *cannot* be used as the basis to invalidate or correct an election outcome. Thus, BMD-based

Similarly, while strong software independence demands that a system be able to report the correct outcome even if there was an error or alteration of the software, it does not require *public evidence* that the (reconstructed) reported outcome is correct. We believe, therefore, that voting systems must also be *defensible*. We say that a voting system is defensible if, when the reported electoral outcome is correct, it is possible to generate convincing public evidence that the reported electoral outcome is correct—despite any malfunctions, software errors, or software alterations that might have occurred. If a voting system is not defensible, then it is vulnerable to "crying wolf": malicious actors could claim that the system malfunctioned when in fact it did not, and election officials will have no way to prove otherwise.

By analogy with *strong software independence*, we define: A voting system is *strongly defensible* if it is defensible and, moreover, a detected change or error in an election outcome (due to change or error in the software) can be corrected (with convincing public evidence) using only the ballots and ballot records of the current election.

In short, a system is contestable if it can generate public evidence of a problem whenever a reported outcome is wrong, while a system is defensible if it can generate public evidence whenever a reported outcome is correct—despite any problems that might have occurred. Contestable systems are publicly tamper-evident; defensible systems are publicly, demonstrably resilient.

Defensibility is a key requirement for *evidence-based elections* [39]: defensibility makes it possible in principle for election officials to generate convincing evidence that the reported winners really won—if the reported winners did really win. (We say an election *system* may be defensible, and an *election* may be evidence-based; there's much more *process* to an election than just the choice of system.)

Examples. The only known practical technology for contestable, strongly defensible voting is a system of *hand-marked paper ballots*, kept demonstrably physically secure, counted by machine, audited manually, and recountable by hand.[5] In a hand-marked paper ballot election, ballot-marking software cannot be the source of an error or change-of-election-outcome, because no software is used in marking ballots. Ballot-scanning-and-counting software can be the source of errors, but such errors can be

election systems are not even (weakly) software independent, unless one takes "detection" to mean "somebody claimed there was a problem, with no evidence to support that claim."

[5]The election must also generate convincing evidence that physical security of the ballots was not compromised, and the audit must generate convincing public evidence that the audit itself was conducted correctly.

detected and corrected by audits.

That system is *contestable:* if an optical scan voting machine reports the wrong outcome because it miscounted (because it was hacked, misprogrammed, or miscalibrated), the evidence is *public*: the paper ballots, recounted before witnesses, will not match the claimed results, also witnessed. It is *strongly defensible:* a recount before witnesses can demonstrate that the reported outcome is correct, or can find the correct outcome if it was wrong—and provide public evidence that the (reconstructed) outcome is correct. See Section 4 for a detailed analysis.

Over 40 states now use some form of paper ballot for most voters [19]. Most of the remaining states are taking steps to adopt paper ballots. But *not all voting systems that use paper ballots are equally secure*.

Some are not even software independent. Some are software independent, but not strongly software independent, contestable, or defensible. In this report we explain:

- *Hand-marked paper ballot* systems are the only practical technology for contestable, strongly defensible voting systems.
- *Some ballot-marking devices (BMDs)* can be software independent, but they not strongly software independent, contestable, or defensible. Hacked or misprogrammed BMDs can alter election outcomes undetectably, so elections conducted using BMDs cannot provide public evidence that reported outcomes are correct. If BMD malfunctions are detected, there is no way to determine who really won. Therefore BMDs should not be used by voters who are able to mark an optical-scan ballot with a pen.
- *All-in-one BMD or DRE+VVPAT voting machines* are not software independent, contestable, or defensible. They should not be used in public elections.

2 Background

We briefly review the kinds of election equipment in use, their vulnerability to computer hacking (or programming error), and in what circumstances risk-limiting audits can mitigate that vulnerability.

Voting equipment

Although a voter may form an intention to vote for a candidate or issue days, minutes, or seconds before actually casting a ballot, that intention is a psychological state that cannot be directly observed by anyone else. Others can have access to that intention through what the voter (privately) *expresses* to the voting technology by interacting with it, e.g., by making selections on a BMD or marking a ballot by hand.[6] Voting systems must accurately record the vote as the voter *expressed* it.

With a *hand-marked paper ballot optical-scan* system, the voter is given a paper ballot on which all choices (candidates) in each contest are listed; next to each candidate is a *target* (typically an oval or other shape) which the voter marks with a pen to indicate a vote. Ballots may be either preprinted or printed (unvoted) at the polling place using *ballot on demand* printers. In either case, the voter creates a tamper-evident record of intent by marking the printed paper ballot with a pen.

Such hand-marked paper ballots may be scanned and tabulated at the polling place using a *precinct-count optical scanner* (PCOS), or may be brought to a central place to be scanned and tabulated by a *central-count optical scanner* (CCOS). Mail-in ballots are typically counted by CCOS machines.

After scanning a ballot, a PCOS machine deposits the ballot in a secure, sealed ballot box for later use in recounts or audits; this is *ballot retention*. Ballots counted by CCOS are also retained for recounts or audits.[7]

Paper ballots can also be hand counted, but in most jurisdictions (especially where there are many contests on the ballot) this is hard to do quickly; Americans expect election-night reporting of unofficial totals. Hand counting—i.e., manually determining votes directly from the paper ballots—is appropriate for audits and recounts.

A *ballot-marking device* (BMD) provides a computerized user interface that presents

[6] We recognize that voters make mistakes in expressing their intentions. For example, they may misunderstand the layout of a ballot or express an unintended choice through a perceptual error, inattention, or lapse of memory. The use of touchscreen technology does not necessarily correct for such user errors, as every smartphone user who has mistyped an important text message knows. Poorly designed ballots, poorly designed touchscreen interfaces, and poorly designed assistive interfaces increase the rate of error in voters' expressions of their votes. For the purposes of this report, we assume that properly engineered systems seek to minimize such usability errors.

[7] Regulations and procedures governing custody and physical security of ballots are uneven and in many cases inadequate, but straightforward to correct because of decades of development of best practices.

the ballot to voters and captures their expressed selections—for instance, a touchscreen interface or an assistive interface that enables voters with disabilities to vote independently. Voter inputs (expressed votes) are recorded electronically. When a voter indicates that the ballot is complete and ready to be cast, the BMD prints a paper version of the electronically marked ballot. We use the term *BMD* for devices that mark ballots but do not tabulate or retain them, and *all-in-one* for devices that combine ballot marking, tabulation, and retention into the same paper path.

The paper ballot printed by a BMD may be in the same format as an optical-scan form (e.g., with ovals filled as if by hand) or it may list just the names of the candidate(s) selected in each contest. The BMD may also encode these selections into barcodes or QR codes for optical scanning. We discuss issues with barcodes later in this report.

An *all-in-one touchscreen voting machine* combines computerized ballot marking, tabulation, and retention in the same paper path. All-in-one machines come in several configurations:

- DRE+VVPAT machines—direct-recording electronic (DRE) voting machines with a voter-verifiable paper audit trail (VVPAT)—provide the voter a touchscreen (or other) interface, then print a paper ballot that is displayed to the voter under glass. The voter is expected to review this ballot and approve it, after which the machine deposits it into a ballot box. DRE+VVPAT machines do not contain optical scanners; that is, they do not read what is marked on the paper ballot; instead, they tabulate the vote directly from inputs to the touchscreen or other interface.
- BMD+Scanner all-in-one machines[8] provide the voter a touchscreen (or other) interface to input ballot choices and print a paper ballot that is ejected from a slot for the voter to inspect. The voter then reinserts the ballot into the slot, after which the all-in-one BMD+scanner scans it and deposits it into a ballot box. Or, some BMD+Scanner all-in-one machines display the paper ballot behind plexiglass for the voter to inspect, before mechanically depositing it into a ballot box.

Opscan+BMD with separate paper paths. At least one model of voting machine (the Dominion ICP320) contains an optical scanner (opscan) and a BMD in the same cabinet,[9] so that the optical scanner and BMD-printer are not in the same paper path; no possible configuration of the software could cause a BMD-marked ballot to be deposited in the ballot box without human handling of the ballot. We do not classify this as an *all-in-one* machine.

[8] Some voting machines, such as the ES&S ExpressVote, can be configured as either a BMD or a BMD+Scanner all-in-one. Others, such as the ExpressVoteXL, work only as all-in-one machines.

[9] More precisely, the ICP320 optical scanner and the BMD audio+buttons interface are in the same cabinet, but the printer is a separate box.

Hacking

There are many forms of computer hacking. In this analysis of voting machines we focus on the alteration of voting machine software so that it miscounts votes or mismarks ballots to alter election outcomes. There are many ways to alter the software of a voting machine: a person with physical access to the computer can open it and directly access the memory; one can plug in a special USB thumbdrive that exploits bugs and vulnerabilities in the computer's USB drivers; one can connect to its WiFi port or Bluetooth port or telephone modem (if any) and exploit bugs in those drivers, or in the operating system.

"Air-gapping" a system (i.e., never connecting it to the Internet nor to any other network) does not automatically protect it. Before each election, election administrators must transfer a *ballot definition* into the voting machine by inserting a *ballot definition cartridge* that was programmed on election-administration computers that may have been connected previously to various networks; it has been demonstrated that vote-changing viruses can propagate via these ballot-definition cartridges [18].

Hackers might be corrupt insiders with access to a voting-machine warehouse; corrupt insiders with access to a county's election-administration computers; outsiders who can gain remote access to election-administration computers; outsiders who can gain remote access to voting-machine manufacturers' computers (and "hack" the firmware installed in new machines, or the firmware updates supplied for existing machines), and so on. Supply-chain hacks are also possible: the hardware installed by a voting system vendor may have malware pre-installed by the vendor's component suppliers.[10]

Computer systems (including voting machines) have so many layers of software that it is impossible to make them perfectly secure [24, pp. 89–91]. When manufacturers of voting machines use the best known security practices, adversaries may find it more difficult to hack a BMD or optical scanner—but not impossible. Every computer in every critical system is vulnerable to compromise through hacking, insider attacks or exploiting design flaws.

[10]Given that many chips and other components are manufactured in China and elsewhere, this is a serious concern. Carsten Schürmann has found Chinese pop songs on the internal memory of voting machines (C. Schürmann, personal communication, 2018). Presumably those files were left there accidentally—but this shows that malicious code *could* have been pre-installed deliberately, and that neither the vendor's nor the election official's security and quality control measures discovered and removed the extraneous files.

Election assurance through risk-limiting audits

To ensure that the reported electoral outcome of each contest corresponds to what the voters expressed, the most practical known technology is a *risk-limiting audit* (RLA) of trustworthy paper ballots [35, 36, 23]. The National Academies of Science, Engineering, and Medicine, recommend routine RLAs after every election [24], as do many other organizations and entities concerned with election integrity.[11]

The *risk limit* of a risk-limiting audit is the maximum chance that the audit will not correct the reported electoral outcome, if the reported outcome is wrong. "Electoral outcome" means the political result—who or what won—not the exact tally. "Wrong" means that the outcome does not correspond to what the voters expressed.

A RLA involves manually inspecting randomly selected paper ballots following a rigorous protocol. The audit stops if and when the sample provides convincing evidence that the reported outcome is correct; otherwise, the audit continues until every ballot has been inspected manually, which reveals the correct electoral outcome if the paper trail is trustworthy. RLAs protect against vote-tabulation errors, whether those errors are caused by failures to follow procedures, misconfiguration, miscalibration, faulty engineering, bugs, or malicious hacking.[12]

The risk limit should be determined as a matter of policy or law. For instance, a 5% risk limit means that, if a reported outcome is wrong solely because of tabulation errors, there is at least a 95% chance that the audit procedure will correct it. Smaller risk limits give higher confidence in election outcomes, but require inspecting more ballots, other things being equal. RLAs never revise a correct outcome.

RLAs can be very efficient, depending in part on how the voting system is designed and how jurisdictions organize their ballots. If the computer results are accurate, an efficient RLA with a risk limit of 5% requires examining just a few—about 7 divided by the margin—ballots selected randomly from the contest.[13] For instance, if the margin of victory is 10% and the results are correct, the RLA would need to examine about $7/10\% = 70$ ballots to confirm the outcome at 5% risk. For a 1% margin, the RLA would need to examine about $7/1\% = 700$ ballots. The sample size does not depend

[11] Among them are the Presidential Commission on Election Administration, the American Statistical Association, the League of Women Voters, and Verified Voting Foundation.

[12] RLAs do not protect against problems that cause BMDs to print something other than what was shown to the voter on the screen, nor do they protect against problems with ballot custody.

[13] Technically, it is the *diluted margin* that enters the calculation. The diluted margin is the number of votes that separate the winner with the fewest votes from the loser with the most votes, divided by the number of ballots cast, including undervotes and invalid votes.

much on the total number of ballots cast in the contest, only on the margin of the winning candidate's victory.

RLAs assume that a full hand tally of the paper trail would reveal the correct electoral outcomes: the paper trail must be trustworthy. Other kinds of audits, such as *compliance audits* [6, 23, 39, 37] are required to establish whether the paper trail itself is trustworthy. Applying an RLA procedure to an untrustworthy paper trail cannot limit the risk that a wrong reported outcome goes uncorrected.

Properly preserved hand-marked paper ballots ensure that expressed votes are identical to recorded votes. But BMDs might not record expressed votes accurately, for instance, if BMD software has bugs, was misconfigured, or was hacked: BMD printout is not a trustworthy record of the expressed votes. Neither a compliance audit nor a RLA can possibly check whether errors in recording expressed votes altered election outcomes. RLAs that rely on BMD output therefore cannot limit the risk that an incorrect reported election outcome will go uncorrected.

A paper-based voting system (such as one that uses optical scanners) is systematically more secure than a paperless system (such as DREs) *only if the paper trail is trustworthy and the results are checked against the paper trail using a rigorous method such as an RLA or full manual tally*. If it is possible that error, hacking, bugs, or miscalibration caused the recorded-on-paper votes to differ from the expressed votes, an RLA or even a full hand recount cannot not provide convincing public evidence that election outcomes are correct: such a system cannot be *defensible*. In short, paper ballots provide little assurance against hacking if they are never examined or if the paper might not accurately reflect the votes expressed by the voters.

3 (Non)Contestability/Defensibility of BMDs

A BMD-generated paper trail is not a reliable record of the vote expressed by the voter. Like any computer, a BMD (or a DRE+VVPAT) is vulnerable to bugs, misconfiguration, hacking, installation of unauthorized (fraudulent) software, and alteration of installed software.

If a hacker sought to steal an election by altering BMD software, what would the hacker program the BMD to do? In cybersecurity practice, we call this the *threat model*.

The simplest threat model is this one: In some contests, not necessarily top-of-the-ticket, change a small percentage of the votes (such as 5%).

In recent national elections, analysts have considered a candidate who received 60% of the vote to have won by a landslide. Many contests are decided by less than a 10% margin. Changing 5% of the votes can change the margin by 10%, because "flipping" a vote for one candidate into a vote for a different candidate changes the difference in their tallies—i.e., the margin—by 2 votes. If hacking or bugs or misconfiguration could change 5% of the votes, that would be a very significant threat.

Although public and media interest often focus on top-of-the-ticket races such as President and Governor, elections for lower offices such as state representatives, who control legislative agendas and redistricting, and county officials, who manage elections and assess taxes, are just as important in our democracy. Altering the outcome of smaller contests requires altering fewer votes, so fewer voters are in a position to notice that their ballots were misprinted. And most voters are not as familiar with the names of the candidates for those offices, so they might be unlikely to notice if their ballots were misprinted, even if they checked.

Research in a real polling place in Tennessee during the 2018 election, found that half the voters *didn't look at all* at the paper ballot printed by a BMD, even when they were holding it in their hand and directed to do so while carrying it from the BMD to the optical scanner [14]. Those voters who did look at the BMD-printed ballot spent *an average of 4 seconds* examining it to verify that the eighteen or more choices they made were correctly recorded. That amounts to 222 milliseconds per contest, barely enough time for the human eye to move and refocus under perfect conditions and not nearly enough time for perception, comprehension, and recall [28]. A study by other researchers [8], in a simulated polling place using real BMDs deliberately hacked to alter one vote on each paper ballot, found that only 6.6% of voters told a pollworker something was wrong.[14][15] The same study found that among voters who examined their hand-marked ballots, half were unable to recall key features of ballots cast moments before, a prerequisite step for being able to recall their own ballot choices. This finding is broadly consistent with studies of effects like "change blindness" or "choice blindness," in which human subjects fail to notice changes made to choices

[14] You might think, "the voter really *should* carefully review their BMD-printed ballot." But because the scientific evidence shows that voters *do not* [14] and cognitively *cannot* [17] perform this task well, legislators and election administrators should provide a voting system that counts the votes *as voters express them*.

[15] Studies of voter confidence about their ability to verify their ballots are not relevant: in typical situations, subjective confidence and objective accuracy are at best weakly correlated. The relationship between confidence and accuracy has been studied in contexts ranging from eyewitness accuracy [9, 13, 42] to confidence in psychological clinical assessments [15] and social predictions [16]. The disconnect is particularly severe at high confidence. Indeed, this is known as "the overconfidence effect." For a lay discussion, see *Thinking, Fast and Slow* by Nobel economist Daniel Kahnemann [21].

made only seconds before [20].

Suppose, then, that 10% of voters examine their paper ballots carefully enough to even *see* the candidate's name recorded as their vote for legislator or county commissioner. Of those, perhaps only half will remember the name of the candidate they intended to vote for.[16]

Of those who notice that the vote printed is not the candidate they intended to vote for, what will they think, and what will they do? Will they think, "Oh, I must have made a mistake on the touchscreen," or will they think, "Hey, the machine is cheating or malfunctioning!" There's no way for the voter to know for sure—voters do make mistakes—and there's *absolutely* no way for the voter to prove to a pollworker or election official that a BMD printed something other than what the voter entered on the screen.[17][18]

Either way, polling-place procedures generally advise voters to ask a pollworker for a new ballot if theirs does not show what they intended. Pollworkers should void that BMD-printed ballot, and the voter should get another chance to mark a ballot. Anecdotal evidence suggests that many voters are too timid to ask, or don't know that they have the right to ask, or are not sure whom to ask. Even if a voter asks for a new ballot, training for pollworkers is uneven, and we are aware of no formal procedure for resolving disputes if a request for a new ballot is refused. Moreover, there is no sensible protocol for ensuring that BMDs that misbehave are investigated—nor can there be, as we argue below.

Let's summarize. If a machine alters votes on 5% of the ballots (enabling it to change the margin by 10%), and 10% of voters check their ballots carefully and 50% of the voters who check notice the error, then optimistically we might expect $5\% \times 10\% \times 50\%$ or 0.25% of the voters to request a new ballot and correct their vote.[19] This

[16] We ask the reader, "do you know the name of the most recent losing candidate for county commissioner?" We recognize that some readers of this document *are* county commissioners, so we ask those readers to imagine the frame of mind of their constituents.

[17] You might think, "the voter can prove it by showing someone that the vote on the paper doesn't match the vote onscreen." But that won't work. On a typical BMD, by the time a paper record is printed and ejected for the voter to hold and examine, the touchscreen no longer shows the voter's choice. You might think, "BMDs should be designed so that the choices still show on the screen for the voter to compare with the paper." But a hacked BMD could easily alter the on-screen choices to match the paper, *after* the voter hits the "print" button.

[18] Voters should *certainly not* videorecord themselves voting! That would defeat the privacy of the secret ballot and is illegal in most jurisdictions.

[19] This calculation assumes that the 10% of voters who check are in effect a random sample of voters: voters' propensity to check BMD printout is not associated with their political preferences.

means that the machine will change the margin by 9.75% and get away with it.

In this scenario, 0.25% of the voters, one in every 400 voters, has requested a new ballot. You might think, "that's a form of *detection* of the hacking." But is isn't, as a practical matter: a few individual voters may have detected that there was a problem, but there's no procedure by which this translates into any action that election administrators can take to correct the outcome of the election. Polling-place procedures *cannot correct or deter hacking, or even reliably detect it*, as we discuss next. This is essentially the distinction between a system that is merely software independent and one that is contestable: a change to the software that alters the outcome might generate evidence for an alert, conscientious, individual voter, but it does not generate public evidence that an election official can rely on to conclude there is a problem.

Even if some voters notice that BMDs are altering votes, there's no way to correct the election outcome. That is, BMD voting systems are *not contestable*, *not defensible* (and therefore *not strongly defensible*), and *not strongly software independent*. Suppose a state election official wanted to detect whether the BMDs are cheating, and correct election results, based on actions by those few alert voters who notice the error. What procedures could possibly work against the manipulation we are considering?

1. How about, "If at least 1 in 400 voters claims that the machine misrepresented their vote, void the entire election."[20] No responsible authority would implement such a procedure. A few dishonest voters could collaborate to invalidate entire elections simply by falsely claiming that BMDs changed their votes.
2. How about, "If at least 1 in 400 voters claims that the machine misrepresented their vote, then investigate." Investigations are fine, but then what? The only way an investigation can ensure that the outcome accurately reflects what voters expressed to the BMDs is to void an election in which the BMDs have altered votes and conduct a new election. But how do you know whether the BMDs have altered votes, except based the claims of the voters?[21] Furthermore, the investigation itself would suffer from the same problem as above: how can one

[20]Note that in many jurisdictions, far fewer than 400 voters use a given machine on election day: BMDs are typically expected to serve fewer than 300 voters per day. (The vendor ES&S recommended 27,000 BMDs to serve Georgia's 7 million voters, amounting to 260 voters per BMD [34].) Recall also that the rate 1 in 400 is tied to the amount of manipulation. What if the malware flipped only one vote in 50, instead of 1 vote in 20? That could still change the margin by 4%, but—in this hypothetical—would be noticed by only one voter in 1,000, rather than one in 400. The smaller the margin, the less manipulation it would have taken to alter the electoral outcome.

[21]Forensic examination of the BMD might show that it *was* hacked or misconfigured, but it cannot prove that the BMD *was not* hacked or misconfigured.

distinguish between voters who detected BMD hacking or bugs from voters who just want to interfere with an election?

This is the essential security flaw of BMDs: few voters will notice and promptly report discrepancies between what they saw on the screen and what is on the BMD printout, and even when they do notice, there's nothing appropriate that can be done. Even if election officials are convinced that BMDs malfunctioned, *there is no way to determine who really won*.

Therefore, BMDs should not be used by most voters.

Why can't we rely on pre-election and post-election logic and accuracy testing, or parallel testing? Most, if not all, jurisdictions perform some kind of *logic and accuracy testing* (LAT) of voting equipment before elections. LAT generally involves voting on the equipment using various combinations of selections, then checking whether the equipment tabulated the votes correctly. As the Volkswagen/Audi "Dieselgate" scandal shows, devices can be programmed to behave properly when they are tested but misbehave in use [12]. Therefore, LAT can never prove that voting machines performed properly in practice.

Parallel or "live" testing involves pollworkers or election officials using some BMDs at random times on election day to mark (but not cast) ballots with test patterns, then check whether the marks match the patterns. The idea is that the testing is not subject to the "Dieselgate" problem, because the machines cannot "know" they are being tested on election day. As a practical matter, the number of tests required to provide a reasonable chance of detecting outcome-changing errors is prohibitive, and even then the system is not *defensible.* See Section 6.

Suppose, counterfactually, that it was practical to perform enough parallel testing to guarantee a large chance of detecting a problem if BMD hacking or malfunction altered electoral outcomes. Suppose, counterfactually, that election officials were required to conduct that amount of parallel testing during every election, and that the required equipment, staffing, infrastructure, and other resources were provided. Even then, the system would not be *strongly defensible*; that is, if testing detected a problem, there would be no way to to determine who really won. The only remedy would be a new election.

Don't voters need to check hand-marked ballots, too? It is always a good idea to check one's work, but there is a substantial body of research (e.g., [29]) suggesting

that preventing error as a ballot is being marked is a fundamentally different cognitive task than detecting an error on a previously marked ballot. In cognitively similar tasks, such as proof reading for non-spelling errors, ten percent rates of error detection are common [29, pp 167ff], whereas by carefully attending to the task of correctly marking their ballots, voters apparently can largely avoid marking errors.

A fundamental difference between hand-marked paper ballots and ballot-marking devices is that, with hand-marked paper ballots, voters are responsible for catching and correcting *their own errors*, while if BMDs are used, voters are also responsible for catching *machine errors, bugs, and hacking*. Voters are the *only* people who can detect such problems with BMDs—but, as explained above, if voters do find problems, there's no way they can prove to poll workers or election officials that there were problems and no way to ensure that election officials take appropriate remedial action.

4 Contestability/defensibility of hand-marked opscan

The most widely used voting system in the United States optical-scan counting of hand-marked paper ballots.[22] Computers and computer software are used in several stages of the voting process, and if that software is hacked (or erroneous), then the computers will deliberately (or accidentally) report incorrect outcomes.

- Computers are used to prepare the PDF files from which (unvoted) optical-scan ballots are printed, with ovals (or other targets to be marked) next to the names of candidates. Because the optical scanners respond to the *position on the page,* not the name of the candidate nearest the target, computer software could cheat by reordering the candidates on the page.
- The optical-scan voting machine, which scans the ballots and interprets the marks, is driven by computer software. Fraudulent (hacked) software can deliberately record (some fraction of) votes for Candidate A and votes for Candidate B.
- After the voting machine reports the in-the-precinct vote totals (or, in the case of central-count optical scan, the individual-batch vote totals), computers are used to aggregate the various precincts or batches together. Hacked software could cheat in this addition process.

Protection against any or all of these attacks relies on a system of risk-limiting

[22]The Verifier – Polling Place Equipment – November 2020, https://www.verifiedvoting.org/verifier/, Verified Voting Foundation, fetched February 8, 2020.

audits, along with compliance audits to check that the chain of custody of ballots and paper records is trustworthy. Without such audits, optical-scan ballots (whether hand marked or machine marked) are neither contestable nor defensible.

We analyze the contestability/defensibility of hand-marked optical-scan ballots with respect to each of these threats, assuming a system of RLAs and compliance audits.

- Hacked generation PDFs leading to fraudulently placed ovals. In this case, a change or error in the computer software *can* change the election outcome: on thousands of ballots, voters place a mark next to the name of candidate A, but (because the candidate name has been fraudulently misplaced on the paper), the (unhacked) optical scanner records this as a vote for candidate B. But an RLA will correct the outcome: a human, inspecting and interpreting this paper ballot, will interpret the mark as a vote for candidate A, as the voter intended. The RLA will, with high probability, conclude that the computer-reported election outcome cannot be confirmed, and a full recount must occur. Thus the system is *contestable:* the RLA produces public evidence that the (computer-reported) outcome is untrustworthy. This full recount (in the presence of witnesses, in view of the public) can provide convincing public evidence of its own correctness; that is, the system is *defensible*.
- Hacked optical-scan vote counter, reporting fraudulent vote totals. In this case, a change or error in the computer software *can* change the election outcome: on thousands of ballots, voters place a mark next to the name of candidate A, but the (hacked) optical scanner records this as a vote for candidate B. But an RLA can detect the incorrect outcome (just as in the case above); the system is *contestable*. And a full recount will produce a correct outcome with public evidence: the system is *defensible*.
- Hacked election-management system (EMS), fraudulently aggregating batches. A risk-limiting audit can detect this problem, and a recount will correct it: the system is contestable and defensible. But actually, contestability and defensibility against this attack is even easier and simpler than RLAs and recounts. Most voting machines (including precinct-count optical scanners) print a "results tape" in the polling place, at the close of the polls (in addition to writing their results electronically to a removable memory card). This results tape is (typically) signed by pollworkers and by credentialed challengers, and open to inspection by members of the public, before it is transported (with chain-of custody protections) along with the ballot boxes to a secure central location. The County Clerk or Registrar of Voters can (and in many counties, does) inspect these paper records to verify that they correspond to the precinct-by-precinct machine-reported aggregation. Errors (or fraud) in aggregation can be detected and cor-

rected without the need to inspect individual ballots: the system is contestable and defensible against this class of errors.

5 End-to-end verifiable (E2E-V) systems

In all BMD systems currently on the market, and in all BMD systems certified by the EAC, the printed ballot or ballot summary is the only channel by which voters can verify the correct recording of their ballots, independently of the computers. The analysis in this paper applies to all of those BMD systems.

There is a class of voting systems called "end-to-end verifiable" (E2E-V), which provide an alternate mechanism for voters to verify their votes [7] [2]. The basic idea of an E2E-V system is that a cryptographic protocol encodes the vote; mathematical properties of the cryptographic system allow the voters to verify (probabilistically) that their vote has been accurately counted, but does not compromise secret ballot by allowing voters to prove how they voted. E2E-V systems have not been adopted in public elections (except that Scantegrity was used for municipal elections in Takoma Park, MD in 2009 and 2011).

Each E2E-V system requires its own analysis of contestability/defensibility.

Scantegrity [10] is a system of preprinted optical-scan ballots, counted by conventional precinct-count optical scanners, but with an additional security feature: when the voter fills in an oval with a special pen, the oval is mostly darkened (so it's counted conventionally by the optical scanner), but two-letter code is also revealed that the voter can (optionally) use in the cryptographic protocol. Scantegrity is contestable/defensible, but not because of its E2E-V properties: since it's an add-on to a conventional optical-scan system with hand-marked paper ballots, RLAs and compliance audits can render this system contestable/defensible.

Prêt-à-Voter [33] is the system in which the voter separates the candidate-list from the oval-target list after marking the ballot and before deposit into the optical scanner. This system can be made contestable, with difficulty: the auditing procedure requires participation of the voters in an unintuitive cryptographic challenge. It is not clear that the system is defensible: if this cryptographic challenge proves that the blank ballots

have been tampered with, then no recount can reliably reconstruct the true result with public evidence.

STAR-Vote [5] is a DRE+VVPAT system with a smart ballot box. Voters interact with a device that captures their votes electronically and prints a paper record that voters can inspect, but the electronic votes are held "in limbo" until the paper ballot is deposited in the smart ballot box. The ballot box does not read the votes from the ballot; rather, depositing the ballot tells the system that it has permission to cast the votes it had already recorded from the touchscreen. The claimed advantage of STAR-Vote (and other systems that use the "Benaloh challenge") is that RLAs and ballot-box chain-of-custody are not required in order to obtain software independence. To assure that the E2E-V cryptographic protocol has correctly recorded each vote, the voter can "challenge" the system to prove that the cryptographic encoding of the ballot records the vote actually printed on the paper ballot. To do so, the voter must discard (void) this ballot and vote a fresh ballot; this is because the challenge process reveals the vote to the public, and a voting system must preserve the secrecy of the (cast) ballots. Thus, the voter cannot ensure the correct encoding of their true ballot, but (since STAR-Vote must print the ballot before knowing whether the voter will challenge), the voter can ensure it with any desired *error probability*.

STAR-Vote is software independent but it is not contestable or defensible. The reason is that, while the challenge can produce public evidence that a machine did not accurately encrypt the plaintext vote on the ballot, if the machine prints the wrong plaintext vote and a correct encryption of that incorrect vote, there is no evidence the voter can use to prove that to anyone else.

No E2E-V system is currently certified by the EAC, nor to our knowledge is any such system under review for certification, nor are any of the 5 major voting-machine vendors offering such a system for sale.[23]

[23] Some vendors, notably Scytl, have sold systems advertised as E2E-V in other countries. Those systems were not in fact E2E-V. Moreover, serious security flaws have been found in their implementations. See, e.g., [22].

6 Parallel testing of BMDs

Wallach [41] has proposed (in response to earlier drafts of this paper) that contestability/defensibility failure of BMDs could be mitigated by *parallel testing*, which he also calls "live auditing." Stark [38] has analyzed Wallach's proposal in detail. Here we provide a summary of the proposal and the analyses.

One might like to test each BMD before the election to make sure it's not hacked. Unfortunately, since the computer in a voting machine (including BMDs) has a real-time clock, the software (including fraudulent vote-stealing software) knows whether it's election day or not. Fraudulent software can make sure not to cheat except on election day.

The idea of parallel testing is to have trained auditors test the BMDs, at random times during an actual election: use the BMD to prepare a ballot, inspect that ballot to ensure it's marked correctly, then discard the ballot. The same BMDs in use during the polling will be selected, from time to time, for such test, right there in the polling places.

If the BMDs cheat with uniform random probability p, and if the BMD cannot distinguish an auditor from an ordinary voter, then after n random audits the probability of detecting the malware is $1 - (1 - p)^n$. If $p = 5\%$ and $n = 240$, then the probability of detection is 91%.

Unfortunately, the attacker is not constrained to cheat with uniform random probability; or, to put it another way, BMD malware may indeed be able to distinguish auditors from ordinary voters. Stark [38] discusses many ways in which the "signature" of how auditors interact with the BMD may differ from ordinary voters, enough to give clues to the malware about whether to cheat.[24] Therefore, one cannot simply multiply $(1 - p)^n$ and calculate a probability of detection.

While auditors might try to build an accurate model of voter behavior for live audits, that approach is doomed by privacy concerns and by the "curse of dimensionality": election officials would have to record every nuance of voter behavior (preferences

[24] For example, BMDs do "know" their own settings and other aspects of each voting session, so malware can use that information to target sessions that use the audio interface, increase the font size, use the sip-and-puff interface, set the language to something other than English, or take much longer than average to vote. (Voters who use those settings might be less likely to be believed if they report that the equipment altered their votes.) For parallel testing to have a good chance of detecting all outcome-changing problems, the tests must have a large chance of probing *every* combination of settings and voting patterns that includes enough ballots to change any contest result. It is not practical.

across contests; language settings, font settings, and other UI settings; timing, including speed of voting and hesitation; on-screen review; etc.) for million of voters to accurately approximate voter behavior.

There are many logistical problems with "live auditing." It would require additional voting machines (because testing requires additional capacity), staff, infrastructure, and other resources, *on election day* when professional staff is most stretched. One must be prepared to perform the audits at the busiest times of day, even that will cause lines of voters to lengthen, because otherwise the malware can simply cheat only at the busy times. Live auditing must be done in view of the voters (one cannot carry the voting machine into another room to do it), but some election officials are concerned that the creation of test ballots in the polling place could be perceived as a threat of ballot-box stuffing.

No state, to our knowledge has implemented parallel testing or live auditing of BMDs.

In any case, we can assess the contestability and defensibility of parallel testing.

With a sufficiently high rate of parallel testing, and a sufficiently sophisticated randomization of auditor behavior, it may be possible to make BMDs with parallel testing *contestable:* an audit could detect *and prove* mismarking of paper ballots.

But BMDs with parallel testing is not *defensible*. It will be extremely difficult for an election official to generate convincing public evidence that the audit *would have* detected mismarking, if mismarking were occurring. To generate that public evidence, the election official would have to reveal substantial detail about the parallel-testing protocol: how, exactly, the random selection of times to test is made; how, exactly, the random selection is made of what candidates to vote for in the tests. Revealing such details of the protocol allows the attacker to analyze the protocol for clues about how and when to cheat with less chance of detection.

Furthermore, parallel testing has a severe disadvantage in comparison with other contestable/defensible paper-ballot-based voting systems: If the auditors detect that the BMDs have mismarked a ballot—even once—the entire election must be invalidated, and a do-over election must be held. This is because the auditor will have detected evidence that the BMDs in this election have been systematically mismarking ballots for some proportion of *all* voters. No recount of the paper ballots can correct this.

In contrast, if optical scanners are hacked to cheat on hand-marked paper ballots,

the correct outcome can be calculated by a full hand recount of the paper ballots.[25]

Wallach also suggests, instead of parallel testing, the use of spoiled-ballot rates as a measure of BMD cheating. Suppose, when BMDs are not cheating the baseline rate of spoiled ballots (i.e., voters asking for a "do-over" of their BMD marked ballot) is 1%. Suppose the machines are cheating on 5% of the ballots, and 6% of voters notice this, and ask for a do-over. Then the spoiled ballot rate increases to 1.3%. The election administrator is supposed to act upon this discrepancy. But the only meaningful action the administrator could take is to invalidate the entire election, and call for a do-over election. This is impractical.

Moreover, the underlying "natural" rate of spoilage will not be known exactly, and will vary from election to election, even if the machines function flawlessly. The natural rate might depend on the number of contests on the ballot, the complexity of voting rules (e.g., IRV versus plurality), ballot layout, and many other factors. For any rule, there will be a tradeoff between false alarms and failures to detect problems.

To continue the previous hypothetical, suppose that spoiled ballots follow a Poisson distribution (there is no reason to think that they do). Imagine that the theoretical rate is known to be 1% if the BMDs function correctly, and known to be 1.3% if the BMDs malfunction. How many votes must be cast for it to be possible to limit the chance of a false alarm to 1%, while ensuring a 99% chance of detecting a real problem? The answer is 28,300 votes. If turnout is roughly 50%, jurisdictions (or contests) with fewer than 60,000 voters could not in principle limit the chance of false positives and of false negatives to 1%—even under these optimistic assumptions and simplifications. Twenty-three of California's 58 counties have fewer than 60,000 registered voters.

7 Other tradeoffs, BMDs versus hand-marked opscan

Supporters of ballot-marking devices advance several other arguments for their use.

- **Mark legibility.** A common argument is that a properly functioning BMD will generate clean, error-free, unambiguous marks, while hand-marked paper ballots may contain mistakes and stray marks that make it impossible to discern a voter's intent. However appealing this argument seems at first blush, the data are not nearly so compelling. Experience with statewide recounts in Minnesota

[25] Provided, of course, that secure chain of custody of the ballot boxes can be demonstrated.

and elsewhere suggest that truly ambiguous handmade marks are very rare.[26] For instance, 2.9 million hand-marked ballots were cast in the 2008 Minnesota race between Al Franken and Norm Coleman for the U.S. Senate. In a manual recount, between 99.95% and 99.99% of ballots were unambiguously marked.[27] [28] In addition, usability studies of hand-marked bubble ballots—the kind in most common use in U.S. elections—indicate a *voter* error rate of 0.6%, much lower than the 2.5–3.7% error rate for machine-marked ballots [17].[29] Thus, mark legibility is not a good reason to adopt BMDs for all voters.

- **Undervotes, overvotes.** Another argument offered for BMDs is that the machines can alert voters to undervotes and prevent overvotes. That is true, but modern PCOS systems can also alert a voter to overvotes and undervotes, allowing a voter to eject the ballot and correct it.
- **Bad ballot design.** Ill-designed paper ballots, just like ill-designed touchscreen interfaces, may lead to unintentional undervotes [25]. For instance, the 2006 Sarasota, Florida, touchscreen ballot was badly designed. The 2018 Broward County, Florida, opscan ballot was badly designed: it violated three separate guidelines from the EAC's 2007 publication, "Effective Designs for the Administration of Federal Elections, Section 3: Optical scan ballots." [40] In both of these cases (touchscreens in 2006, hand-marked optical-scan in 2018), undervote rates were high. The solution is to follow standard, published ballot-design guidelines and other best practices, both for touchscreens and for hand-marked ballots [3, 25].
- **Low-tech paper-ballot fraud.** All paper ballots, however they are marked, are vulnerable to *loss*, *ballot-box stuffing*, *alteration*, and *substitution* between the time they are cast and the time they are recounted. That's why it is so important

[26] States do need clear and complete regulations for interpreting voter marks.

[27] "During the recount, the Coleman and Franken campaigns initially challenged a total of 6,655 ballot-interpretation decisions made by the human recounters. The State Canvassing Board asked the campaigns to voluntarily withdraw all but their most serious challenges, and in the end approximately 1,325 challenges remained. That is, approximately 5 ballots in 10,000 were ambiguous enough that one side or the other felt like arguing about it. The State Canvassing Board, in the end, classified all but 248 of these ballots as votes for one candidate or another. That is, approximately 1 ballot in 10,000 was ambiguous enough that the bipartisan recount board could not determine an intent to vote." [1] See also [26]

[28] We have found that some local election officials consider marks to be ambiguous if *machines* cannot read the marks. That is a different issue from *humans* being unable to interpret the marks. Errors in machine interpretation of voter intent can be dealt with by manual audits: if the reported outcome is wrong because machines misinterpreted handmade marks, a RLA has a known, large chance of correcting the outcome.

[29] Better designed user interfaces (UI) might reduce the error rate for machine-marked ballots below the historical rate for DREs; however, UI improvements cannot keep BMDs from printing something other than what the voter is shown on the screen.

to make sure that ballot boxes are always in multiple-person (preferably bipartisan) custody whenever they are handled, and that appropriate physical security measures are in place. Strong, verifiable chain-of-custody protections are essential.

Hand-marked paper ballots are vulnerable to alteration by anyone with a pen. Both hand-marked and BMD-marked paper ballots are vulnerable to substitution: anyone who has poorly supervised access to a legitimate BMD during election day can create fraudulent ballots, not necessarily to deposit them in the ballot box immediately (in case the ballot box is well supervised on election day) but with the hope of substituting it later in the chain of custody.[30]

All those attacks (on hand-marked and on BMD-marked paper ballots) are fairly low-tech. There are also higher-tech ways of producing ballots indistinguishable from BMD-marked ballots for substitution into the ballot box if there is inadequate chain-of-custody protection.

- **Accessible voting technology.** When hand-marked paper ballots are used with PCOS, there is (as required by law) also an accessible voting technology available in the polling place for voters unable to mark a paper ballot with a pen. This is typically a BMD or a DRE. When the accessible voting technology is not the same as what most voters vote on—when it is used by very few voters—it may happen that the accessible technology is ill-maintained or even (in some polling places) not even properly set up by pollworkers. This is a real problem. One proposed solution is to require all voters to use the same BMD or all-in-one technology. But the failure of some election officials to properly maintain their accessible equipment is not a good reason to adopt BMDs for *all* voters. Among other things, it would expose all voters to the security flaws described above.[31] Other advocates object to the idea that disabled voters must use a different method of marking ballots, arguing that their rights are thereby violated. Both HAVA and ADA require reasonable accommodations for voters with physical and cognitive impairments, but neither law requires that those accommodations must be used by all voters. To best enable and facilitate participation by all voters, each voter should be provided with a means of casting a vote best suited to their abilities.
- **Ballot printing costs.** Preprinted optical-scan ballots cost 20–50 cents each.[32]

[30] Some BMDs print a barcode indicating when and where the ballot was produced, but that does not prevent such a substitution attack against currently EAC-certified, commercially available BMDs. We understand that systems under development might make ballot-substitution attacks against BMDs more difficult.

[31] Also, some accessibility advocates argue that requiring disabled voters to use BMDs compromises their privacy since hand-marked ballots are easily distinguishable from machine marked ballots. That issue can be addressed without BMDs-for-all: Accessible BMDs are already available and in use that mark ballots with marks that cannot easily be distinguished from hand-marked ballots.

[32] Single-sheet (one- or two-side) ballots cost 20-28 cents; double-sheet ballots needed for elections

Blank cards for BMDs cost up to 15 cents each, depending on the make and model of BMD.[33] But optical-scan ballots must be preprinted for as many voters as *might* show up, whereas blank BMD cards are consumed in proportion to how many voters *do* show up. The Open Source Election Technology Institute (OSET) conducted an independent study of total life cycle costs[34] for hand-marked paper ballots and BMDs in conjunction with the 2019 Georgia legislative debate regarding BMDs [27]. OSET concluded that, even in the most optimistic (i.e., lowest cost) scenario for BMDs and the most pessimistic (i.e, highest cost) scenario for hand-marked paper ballots and ballot-on-demand (BOD) printers—which can print unmarked ballots as needed—the total lifecycle costs for BMDs would be higher than the corresponding costs for hand-marked paper ballots.[35]

- **Vote centers.** To run a vote center that serves many election districts with different ballot styles, one must be able to provide each voter a ballot containing the contests that voter is eligible to vote in, possibly in a number of different languages. This is easy with BMDs, which can be programmed with all the appropriate ballot definitions. With preprinted optical-scan ballots, the PCOS can be programmed to *accept* many different ballot styles, but the vote center must still maintain *inventory* of many different ballots. BOD printers are another economical alternative for vote centers.[36]
- **Paper/storage.** BMDs that print summary cards rather than full-face ballots can save paper and storage space. However, many BMDs print full-face ballots—so they do not save storage—while many BMDs that print summary cards (which could save storage) use thermal printers and paper that is fragile and can fade in a few months.[37]

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with many contests cost up to 50 cents.

[33] Ballot cards for ES&S ExpressVote cost about 15 cents. New Hampshire's (One4All / Prime III) BMDs used by sight-impaired voters use plain paper that is less expensive.

[34] They include not only the cost of acquiring and implementing systems but also the ongoing licensing, logistics, and operating (purchasing paper stock, printing, and inventory management) costs.

[35] BOD printers currently on the market arguably are best suited for vote centers, but less expensive options suited for polling places could be developed. Indeed, BMDs that print full-face ballots could be re-purposed as BOD printers for polling place use, with modest changes to the programming.

[36] Ballot-on-demand printers *may* require maintenance such as replacement of toner cartridges. This is readily accomplished at a vote center with a professional staff. Ballot-on-demand printers may be a less attractive option for many small precincts on election day, where there is no professional staff—but on the other hand, they are less necessary, since far fewer ballot styles will be needed in any one precinct.

[37] The California Top-To-Bottom Review (TTBR) of voting systems found that thermal paper can also be covertly spoiled wholesale using common household chemicals https://votingsystems.cdn.sos.ca.gov/oversight/ttbr/red-diebold.pdf, last visited 8 April 2019. The fact that thermal paper printing can fade or deteriorate rapidly might mean it does not satisfy the federal requirement to preserve voting materials for 22 months. http://uscode.house.gov/view.xhtml?req=granuleid:USC-prelim-title52-section20701&num=0&edition=prelim, last visited 8

Advocates of hand-marked paper ballot systems advance these additional arguments.

- **Cost.** Using BMDs for all voters substantially increases the cost of acquiring, configuring, and maintaining the voting system. One PCOS can serve 1200 voters in a day, while one BMD can serve only about 260 [34]—though both these numbers vary greatly depending on the length of the ballot and the length of the day. OSET analyzed the relative costs of acquiring BMDs for Georgia's nearly seven million registered voters versus a system of hand-marked paper ballots, scanners, and BOD printers [27]. A BMD solution for Georgia would cost taxpayers between 3 and 5 times more than a system based on hand-marked paper ballots. Open-source systems might eventually shift the economics, but current commercial universal-use BMD systems are more expensive than systems that use hand-marked paper ballots for most voters.
- **Mechanical reliability and capacity.** Pens are likely to have less downtime than BMDs. It is easy and inexpensive to get more pens and privacy screens when additional capacity is needed. If a precinct-count scanner goes down, people can still mark ballots with a pen; if the BMD goes down, voting stops. Thermal printers used in DREs with VVPAT are prone to jams; those in BMDs might have similar flaws.

These secondary pros and cons of BMDs do not outweigh the primary security and accuracy concern: BMDs, if hacked or erroneously programmed, can change votes in a way that is not correctable. BMD voting systems are not contestable or defensible. Audits that rely on BMD printout cannot make up for this defect in the paper trail: they cannot reliably detect or correct problems that altered election outcomes.

Barcodes

A controversial feature of some BMDs allows them to print 1-dimensional or 2-dimensional barcodes on the paper ballots. A 1-dimensional barcode resembles the pattern of vertical lines used to identify products by their universal product codes. A 2-dimensional barcode or QR code is a rectangular area covered in coded image *modules* that encode more complex patterns and information. BMDs print barcodes on the same paper ballot that contains human-readable ballot choices. Voters using BMDs are expected to verify the human-readable printing on the paper ballot card, but the presence of barcodes with human-readable text poses some significant problems.

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- **Barcodes are not human readable.** The whole purpose of a paper ballot is to be able to recount (or audit) the *voters'* votes in a way independent of any (possibly hacked or buggy) computers. If the official vote on the ballot card is the barcode, then it is impossible for the voters to verify that the official vote they cast is the vote they expressed. Therefore, before a state even *considers* using BMDs that print barcodes (and we do not recommend doing so), the State must ensure by statute that recounts and audits are based *only* on the human-readable portion of the paper ballot. Even so, audits based on untrustworthy paper trails suffer from the verifiability the problems outlined above.
- **Ballot cards with barcodes contain two different votes.** Suppose a state does ensure by statute that recounts and audits are based on the human-readable portion of the paper ballot. Now a BMD-marked ballot card with both barcodes and human-readable text contains two different votes in each contest: the barcode (used for electronic tabulation), and the human-readable selection printout (official for audits and recounts). In few (if any) states has there even been a discussion of the legal issues raised when the official markings to be counted differ between the original count and a recount.
- **Barcodes pose technical risks.** Any coded input into a computer system—including wired network packets, WiFi, USB thumbdrives, *and barcodes*—pose the risk that the input-processing software can be vulnerable to attack via deliberately ill-formed input. Over the past two decades, many such vulnerabilities have been documented on *each* of these channels (including barcode readers) that, in the worst case, give the attacker complete control of a system.[38] If an attacker were able to compromise a BMD, the barcodes are an attack vector for the attacker to take over an optical scanner (PCOS or CCOS), too. Since it is good practice to close down all such unneeded attack vectors into PCOS or CCOS voting machines (e.g., don't connect your PCOS to the Internet!), it is also good practice to avoid unnecessary attack channels such as barcodes.

8 Insecurity of All-in-One BMDs

Some voting machines incorporate a BMD interface, printer, and optical scanner into the same cabinet. Other DRE+VVPAT voting machines incorporate ballot-marking, tabulation, and paper-printout retention, but without scanning. These are often called

[38] An example of a barcode attack is based on the fact that many commercial barcode-scanner components (which system integrators use to build cash registers or voting machines) treat the barcode scanner using the same operating-system interface as if it were a keyboard device; and then some operating systems allow "keyboard escapes" or "keyboard function keys" to perform unexpected operations.

"all-in-one" voting machines. To use an all-in-one machine, the voter makes choices on a touchscreen or through a different accessible interface. When the selections are complete, the BMD prints the completed ballot for the voter to review and verify, before depositing the ballot in a ballot box attached to the machine.

Such machines are especially unsafe: like any BMD described in Section 3 they are not contestable or defensible, but in addition, if hacked they can print votes onto the ballot *after* the voter last inspects the ballot.

- The ES&S ExpressVote (in all-in-one mode) allows the voter to mark a ballot by touchscreen or audio interface, then prints a paper ballot card and ejects it from a slot. The voter has the opportunity to review the ballot, then the voter redeposits the ballot into the same slot, where it is scanned and deposited into a ballot box.
- The ES&S ExpressVoteXL allows the voter to mark a ballot by touchscreen or audio interface, then prints a paper ballot and displays it under glass. The voter has the opportunity to review the ballot, then the voter touches the screen to indicate "OK," and the machine pulls paper ballot up (still under glass) and into the integrated ballot box.
- The Dominion ImageCast Evolution (ICE) allows the voter to deposit a hand-marked paper ballot, which it scans and drops into the attached ballot box. *Or*, a voter can use a touchscreen or audio interface to direct the marking of a paper ballot, which the voting machine ejects through a slot for review; then the voter redeposits the ballot into the slot, where it is scanned and dropped into the ballot box.

In all three of these machines, the ballot-marking printer is in the same paper path as the mechanism to deposit marked ballots into an attached ballot box. This opens up a very serious security vulnerability: the voting machine can mark the paper ballot (to add votes or spoil already-cast votes) after the last time the voter sees the paper, and then deposit that marked ballot into the ballot box without the possibility of detection.

Vote-stealing software could easily be constructed that looks for *undervotes* on the ballot, and marks those unvoted spaces for the candidate of the hacker's choice. This is very straightforward to do on optical-scan bubble ballots (as on the Dominion ICE) where undervotes are indicated by no mark at all. On machines such as the ExpressVote and ExpressVoteXL, the normal software indicates an undervote with the words NO SELECTION MADE on the ballot summary card. Hacked software could simply leave a blank space there (most voters wouldn't notice the difference), and then fill in that space and add a matching bar code after the voter has clicked "cast this ballot."

An even worse feature of the ES&S ExpressVote and the Dominion ICE is the *auto-*

cast configuration setting (in the manufacturer's standard software) that allows the voter to indicate, "don't eject the ballot for my review, just print it and cast it without me looking at it." If fraudulent software were installed in the ExpressVote, it could change *all* the votes of any voter who selected this option, because the voting machine software would know *in advance of printing* that the voter had waived the opportunity to inspect the printed ballot. We call this auto-cast feature "permission to cheat" [4].

Regarding these all-in-one machines, we conclude:

- Any machine with ballot printing in the same paper path with ballot deposit is not *software independent*; it is *not* the case that "an error or fault in the voting system software or hardware cannot cause an undetectable change in election results." Therefore such all-in-one machines do not comply with the VVSG 2.0 (the Election Assistance Commission's Voluntary Voting Systems Guidelines). Such machines are not contestable or defensible, either.
- All-in-one machines on which all voters use the BMD interface to mark their ballots (such as the ExpressVote and ExpressVoteXL) *also* suffer from the same serious problem as ordinary BMDs: most voters do not review their ballots effectively, and elections on these machines are not contestable or defensible.
- The auto-cast option for a voter to allow the paper ballot to be cast without human inspection is particularly dangerous, and states must insist that vendors disable or eliminate this mode from the software. However, even disabling the auto-cast feature does not eliminate the risk of undetected vote manipulation.

Remark. The Dominion ImageCast Precinct ICP320 is a precinct-count optical scanner (PCOS) that also contains an audio+buttons ballot-marking interface for disabled voters. This machine can be configured to cast electronic-only ballots from the BMD interface, or an external printer can be attached to print paper optical-scan ballots from the BMD interface. When the external printer is used, that printer's paper path is *not* connected to the scanner+ballot-box paper path (a person must take the ballot from the printer and deposit it into the scanner slot). Therefore this machine is as safe to use as any PCOS with a separate external BMD.

9 Conclusion

Ballot-Marking Devices produce ballots that do not necessarily record the vote expressed by the voter when they enter their selections on the touchscreen: hacking, bugs, and configuration errors can cause the BMDs to print votes that differ from what the

voter entered and verified electronically. Because outcome-changing errors in BMD printout do not produce public evidence, BMD systems are not *contestable*. Because there is no way to generate convincing public evidence that reported outcomes are correct despite any BMD malfunctions that might have occurred, BMD systems are not *defensible*. Therefore, BMDs should not be used by voters who can hand mark paper ballots.

All-in-one voting machines, which combine ballot-marking and ballot-box-deposit into the same paper path, are even worse. They have all the disadvantages of BMDs (they are not contestable or defensible), and they can mark the ballot after the voter has inspected it. Therefore they are not even *software independent*, and should not be used by those voters who are capable of marking, handling, and visually inspecting a paper ballot.

When computers are used to record votes, the original transaction (the voter's expression of the votes) is not documented in a verifiable way.[39] When pen-and-paper is used to record the vote, the original expression of the vote *is* documented in a verifiable way (if demonstrably secure chain of custody of the paper ballots is maintained). Audits of elections conducted with hand-marked paper ballots, counted by optical scanners, can ensure that reported election outcomes are correct. Audits of elections conducted with BMDs *cannot* ensure that reported outcomes are correct.

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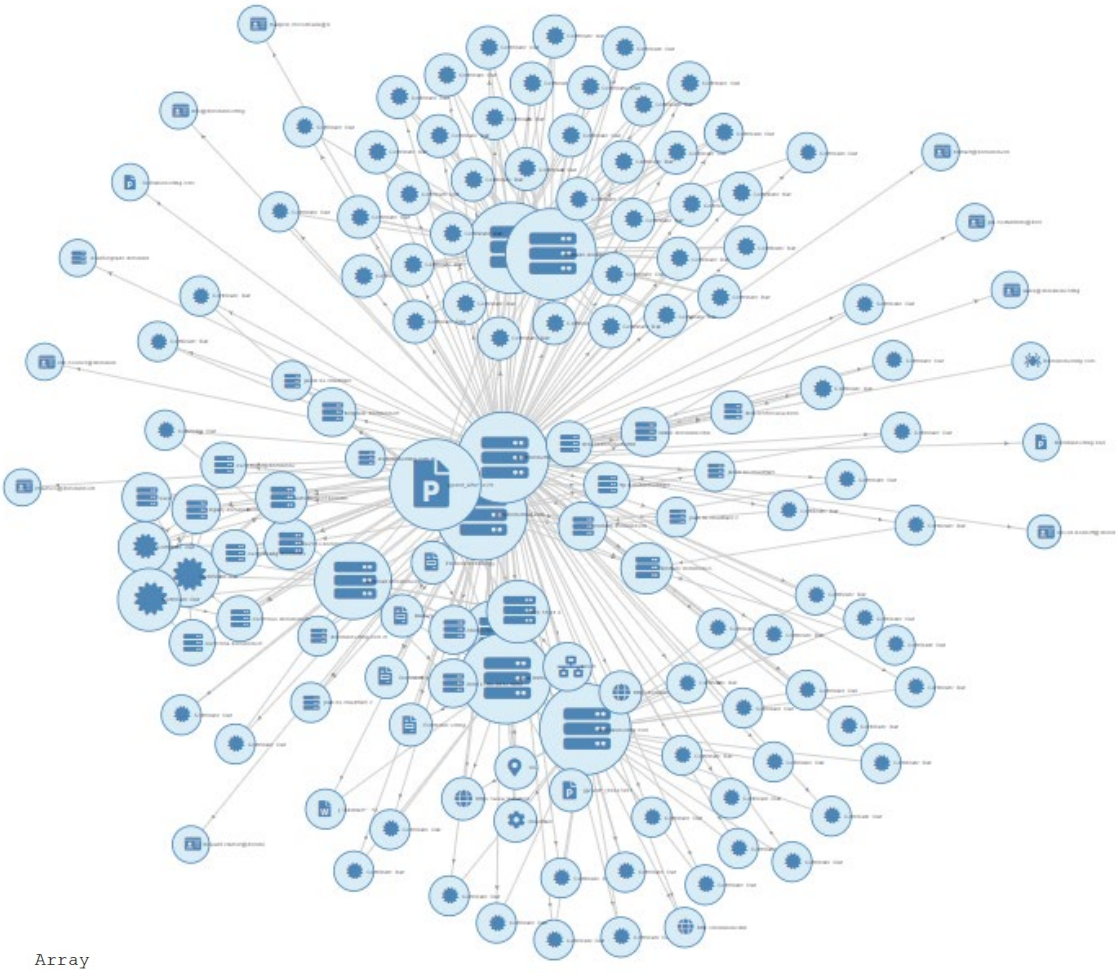
Exh. 7

Declaration of [redacted]

Pursuant to 28 U.S.C Section 1746, [redacted] make the following declaration.

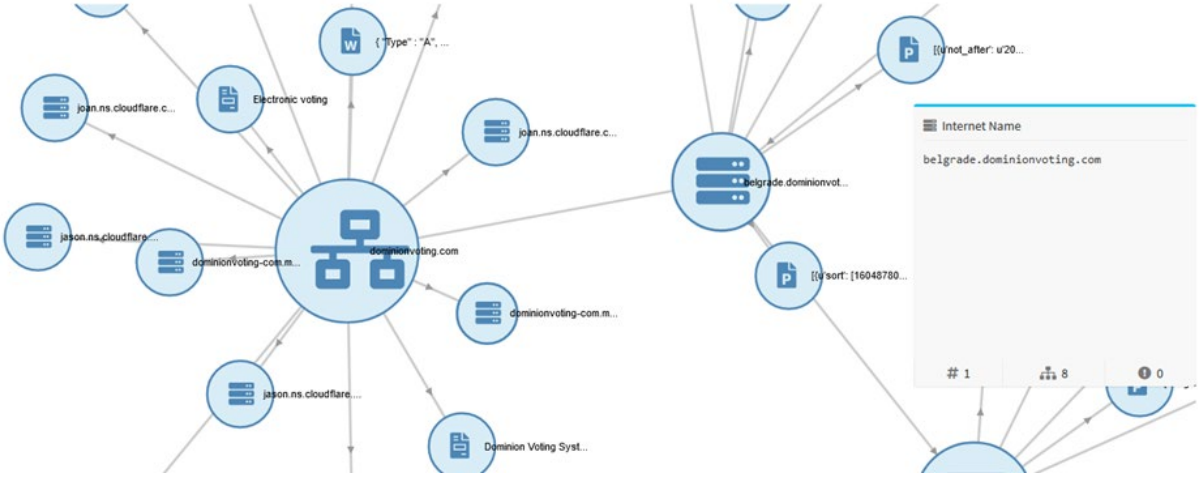
1. I am over the age of 21 years and I am under no legal disability, which would prevent me from giving this declaration.
2. I was an electronic intelligence analyst under 305th Military Intelligence with experience gathering SAM missile system electronic intelligence. I have extensive experience as a white hat hacker used by some of the top election specialists in the world. The methodologies I have employed represent industry standard cyber operation toolkits for digital forensics and OSINT, which are commonly used to certify connections between servers, network nodes and other digital properties and probe to network system vulnerabilities.
3. I am a US citizen and I reside [redacted] location in the United States of America.
4. Whereas the Dominion and Edison Research systems exist in the internet of things, and whereas this makes the network connections between the Dominion, Edison Research and related network nodes available for scanning,
5. And whereas Edison Research's primary job is to report the tabulation of the count of the ballot information as received from the tabulation software, to provide to Decision HQ for election results,
6. And whereas Spiderfoot and Robtex are industry standard digital forensic tools for evaluation network security and infrastructure, these tools were used to conduct public security scans of the aforementioned Dominion and Edison Research systems,
7. A public network scan of Dominionvoting.com on 2020-11-08 revealed the following inter-relationships and revealed 13 unencrypted passwords for dominion employees, and 75 hashed passwords available in TOR nodes:

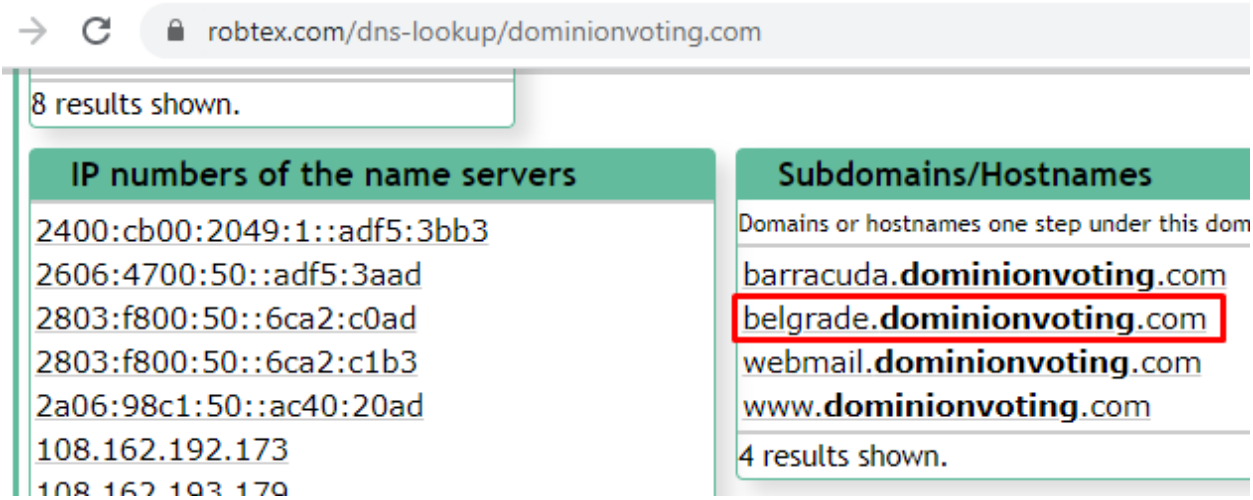


```
Array
(
    [id] => 544167324
    [luser] => ian.macvicar
    [domain] => dominionvoting.com
    [password] => jamley
)

7
Array
(
    [id] => 599400504
    [luser] => jelena.tanaskovic
    [domain] => dominionvoting.com
```

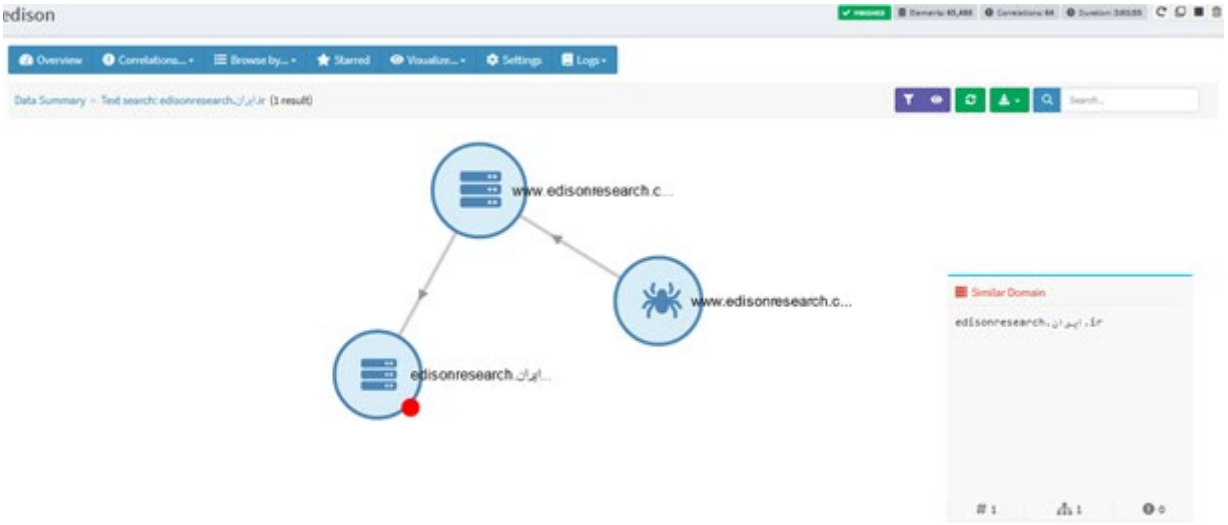
8. The same public scan also showed a direct connection to the group in Belgrade as highlighted below:





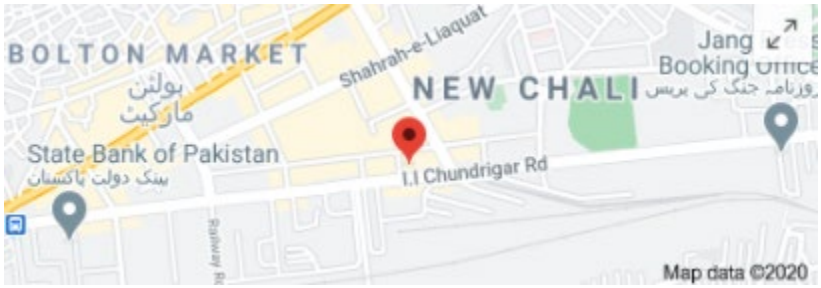
9. A cursory search on LinkedIn of "dominion voting" on 11/19/2020 confirms the numerous employees in Serbia:

10. An additional search of Edison Research on 2020-11-08 showed that Edison Research has an Iranian server seen here:

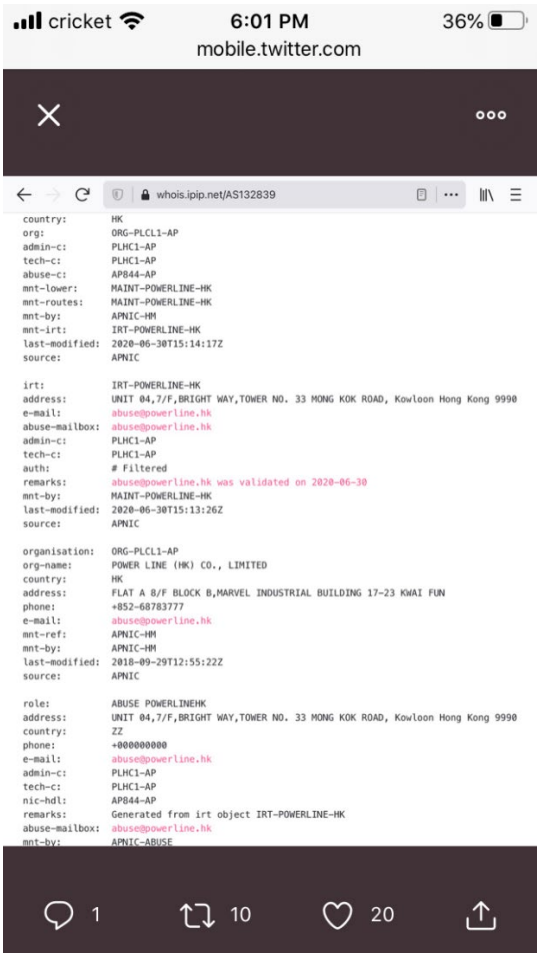


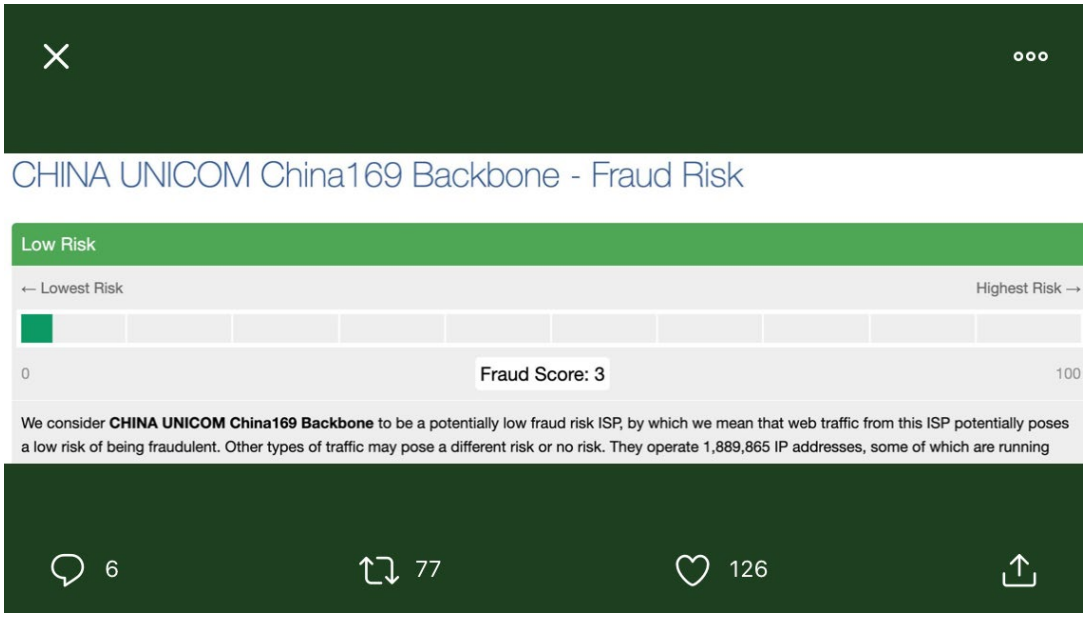
Inputting the Iranian IP into Robtex confirms the direct connection into the "edisonresearch" host from the perspective of the Iranian domain also. This means that it is not possible that the connection was a unidirectional reference.

A deeper search of the ownership of Edison Research "edisonresearch.com" shows a connection to BMA Capital Management, where shareofear.com and bmacapital.com are both connected to edisonresearch.com via a VPS or Virtual Private Server, as denoted by the "vps" at the start of the internet name:

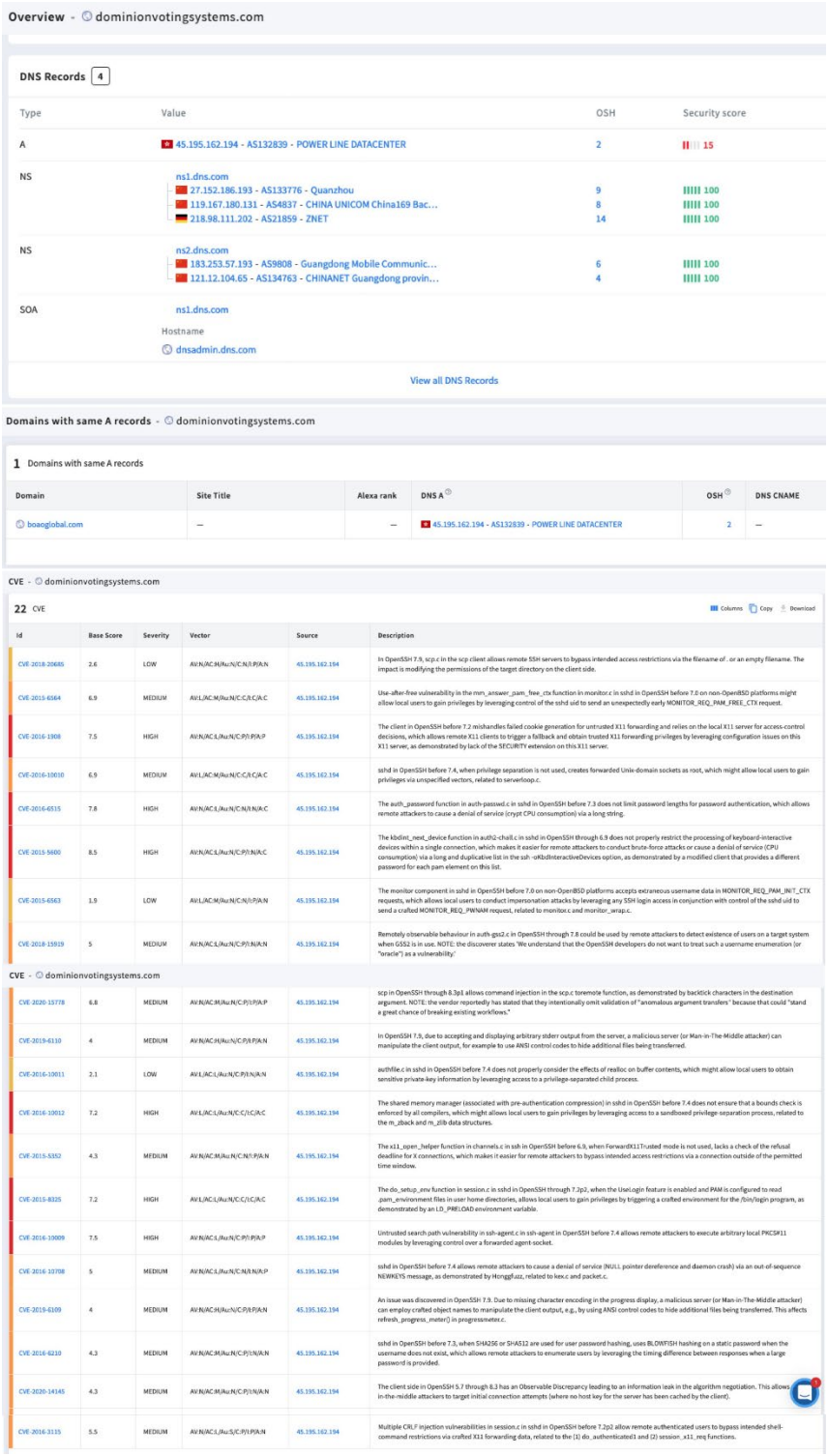


Dominionvoting is also dominionvotingsystems.com, of which there are also many more examples, including access of the network from China. The records of China accessing the server are reliable.





Domain Name: dominionvotingsystems.com
Registry Domain ID: 2530599738_DOMAIN_COM-VRSN
Registrar WHOIS Server: whois.godaddy.com
Registrar URL: http://www.godaddy.com
Updated Date: 2020-05-26T15:48:58Z
Creation Date: 2020-05-26T15:48:57Z
Registrar Registration Expiration Date: 2021-05-26T15:48:57Z
Registrar: GoDaddy.com, LLC
Registrar IANA ID: 146
Registrar Abuse Contact Email: abuse@godaddy.com
Registrar Abuse Contact Phone: +1.4806242505
Domain Status: clientTransferProhibited http://www.icann.org/epp#clientTransferProhibited
Domain Status: clientUpdateProhibited http://www.icann.org/epp#clientUpdateProhibited
Domain Status: clientRenewProhibited http://www.icann.org/epp#clientRenewProhibited
Domain Status: clientDeleteProhibited http://www.icann.org/epp#clientDeleteProhibited
Registrant Organization:
Registrant State/Province: Hunan
Registrant Country: CN
Registrant Email: Select Contact Domain Holder link at
https://www.godaddy.com/whois/results.aspx?domain=dominionvotingsystems.com
Admin Email: Select Contact Domain Holder link at
https://www.godaddy.com/whois/results.aspx?domain=dominionvotingsystems.com
Tech Email: Select Contact Domain Holder link at
https://www.godaddy.com/whois/results.aspx?domain=dominionvotingsystems.com
Name Server: NS1.DNS.COM
Name Server: NS2.DNS.COM
DNSSEC: unsigned



Overview - dominionvotingsystems.com

DNS Records 4

Type	Value	OSH	Security score
A	45.195.162.194 - AS132839 - POWER LINE DATACENTER	2	15
NS	ns1.dns.com 27.152.186.193 - AS133776 - Quanzhou 119.167.180.131 - AS4837 - CHINA UNICOM China169 Bac... 218.98.111.202 - AS21859 - ZNET	 9 8 14	 100 100 100
NS	ns2.dns.com 183.253.57.193 - AS9808 - Guangdong Mobile Communic... 121.12.104.65 - AS134763 - CHINANET Guangdong provin...	 6 4	 100 100
SOA	ns1.dns.com Hostname dnsadmin.dns.com		

View all DNS Records

Domains with same A records - dominionvotingsystems.com

1 Domains with same A records

Domain	Site Title	Alexa rank	DNS A	OSH	DNS CNAME
boaoglobal.com	–	–	45.195.162.194 - AS132839 - POWER LINE DATACENTER	2	–

CVE - dominionvotingsystems.com

22 CVE

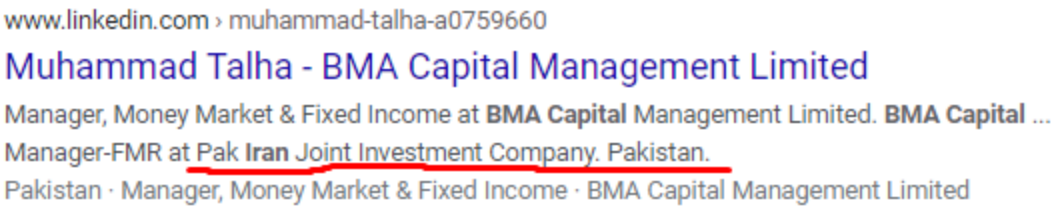
Columns Copy Download

Id	Base Score	Severity	Vector	Source	Description
CVE-2018-20685	2.6	LOW	AV:N/AC:M/Au:N/C:N/I:P/A:N	45.195.162.194	In OpenSSH 7.9, scp.c in the scp client allows remote SSH servers to bypass intended access restrictions via the filename of . or an empty filename. The impact is modifying the permissions of the target directory on the client side.
CVE-2015-6564	6.9	MEDIUM	AV:L/AC:M/Au:N/C:C/I:C/A:C	45.195.162.194	Use-after-free vulnerability in the mm_answer_pam_free_ctx function in monitor.c in sshd in OpenSSH before 7.0 on non-OpenBSD platforms might allow local users to gain privileges by leveraging control of the sshd uid to send an unexpectedly early MONITOR_REQ_PAM_FREE_CTX request.
CVE-2016-1908	7.5	HIGH	AV:N/AC:L/Au:N/C:P/I:P/A:P	45.195.162.194	The client in OpenSSH before 7.2 mishandles failed cookie generation for untrusted X11 forwarding and relies on the local X11 server for access-control decisions, which allows remote X11 clients to trigger a fallback and obtain trusted X11 forwarding privileges by leveraging configuration issues on this X11 server, as demonstrated by lack of the SECURITY extension on this X11 server.
CVE-2016-10010	6.9	MEDIUM	AV:L/AC:M/Au:N/C:C/I:C/A:C	45.195.162.194	sshd in OpenSSH before 7.4, when privilege separation is not used, creates forwarded Unix-domain sockets as root, which might allow local users to gain privileges via unspecified vectors, related to serverloop.c.
CVE-2016-6515	7.8	HIGH	AV:N/AC:L/Au:N/C:N/I:N/A:C	45.195.162.194	The auth_password function in auth-passwd.c in sshd in OpenSSH before 7.3 does not limit password lengths for password authentication, which allows remote attackers to cause a denial of service (crypt CPU consumption) via a long string.
CVE-2015-5600	8.5	HIGH	AV:N/AC:L/Au:N/C:P/I:N/A:C	45.195.162.194	The kbdint_next_device function in auth2-chall.c in sshd in OpenSSH through 6.9 does not properly restrict the processing of keyboard-interactive devices within a single connection, which makes it easier for remote attackers to conduct brute-force attacks or cause a denial of service (CPU consumption) via a long and duplicative list in the ssh -oRhostsInteractiveDevices option, as demonstrated by a modified client that provides a different password for each pam element on this list.
CVE-2015-6563	1.9	LOW	AV:L/AC:M/Au:N/C:N/I:P/A:N	45.195.162.194	The monitor component in sshd in OpenSSH before 7.0 on non-OpenBSD platforms accepts extraneous username data in MONITOR_REQ_PAM_INIT_CTX requests, which allows local users to conduct impersonation attacks by leveraging any SSH login access in conjunction with control of the sshd uid to send a crafted MONITOR_REQ_PWNAM request, related to monitor.c and monitor_wrap.c.
CVE-2018-15919	5	MEDIUM	AV:N/AC:L/Au:N/C:P/I:N/A:N	45.195.162.194	Remotely observable behaviour in auth-gss2.c in OpenSSH through 7.8 could be used by remote attackers to detect existence of users on a target system when GSS2 is in use. NOTE: the discoverer states 'We understand that the OpenSSH developers do not want to treat such a username enumeration (or "oracle") as a vulnerability.'

CVE - dominionvotingsystems.com

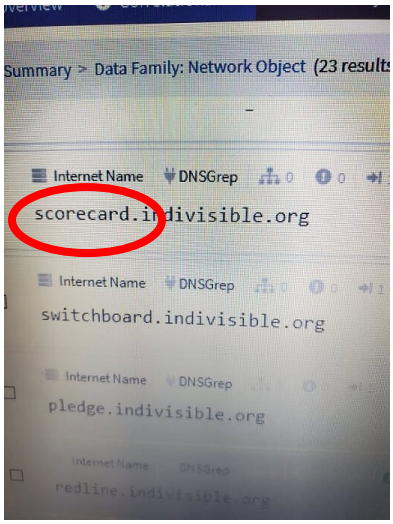
CVE-2020-15778	6.8	MEDIUM	AV:N/AC:M/Au:N/C:P/I:P/A:P	45.195.162.194	scp in OpenSSH through 8.3p1 allows command injection in the scp.c tolerate function, as demonstrated by backtick characters in the destination argument. NOTE: the vendor reportedly has stated that they intentionally omit validation of "anomalous argument transfers" because that could "stand a great chance of breaking existing workflows."
CVE-2019-6110	4	MEDIUM	AV:N/AC:H/Au:N/C:P/I:P/A:N	45.195.162.194	In OpenSSH 7.9, due to accepting and displaying arbitrary stderr output from the server, a malicious server (or Man-in-The-Middle attacker) can manipulate the client output, for example to use ANSI control codes to hide additional files being transferred.
CVE-2016-10011	2.1	LOW	AV:L/AC:L/Au:N/C:P/I:N/A:N	45.195.162.194	authfile.c in sshd in OpenSSH before 7.4 does not properly consider the effects of realloc on buffer contents, which might allow local users to obtain sensitive private-key information by leveraging access to a privilege-separated child process.
CVE-2016-10012	7.2	HIGH	AV:L/AC:L/Au:N/C:C/I:C/A:C	45.195.162.194	The shared memory manager (associated with pre-authentication compression) in sshd in OpenSSH before 7.4 does not ensure that a bounds check is enforced by all compilers, which might allow local users to gain privileges by leveraging access to a sandboxed privilege-separation process, related to the m_zback and m_zlib data structures.
CVE-2015-5352	4.3	MEDIUM	AV:N/AC:M/Au:N/C:N/I:P/A:N	45.195.162.194	The x11_open_helper function in channels.c in ssh in OpenSSH before 6.9, when ForwardX11Trusted mode is not used, lacks a check of the refusal deadline for X connections, which makes it easier for remote attackers to bypass intended access restrictions via a connection outside of the permitted time window.
CVE-2015-8325	7.2	HIGH	AV:L/AC:L/Au:N/C:C/I:C/A:C	45.195.162.194	The do_setup_env function in session.c in sshd in OpenSSH through 7.2p2, when the UseLogin feature is enabled and PAM is configured to read .pam_environment files in user home directories, allows local users to gain privileges by triggering a crafted environment for the /bin/login program, as demonstrated by an LD_PRELOAD environment variable.
CVE-2016-10009	7.5	HIGH	AV:N/AC:L/Au:N/C:P/I:P/A:P	45.195.162.194	Untrusted search path vulnerability in ssh-agent.c in ssh-agent in OpenSSH before 7.4 allows remote attackers to execute arbitrary local PKCS#11 modules by leveraging control over a forwarded agent-socket.
CVE-2016-10708	5	MEDIUM	AV:N/AC:L/Au:N/C:N/I:N/A:P	45.195.162.194	sshd in OpenSSH before 7.4 allows remote attackers to cause a denial of service (NULL pointer dereference and daemon crash) via an out-of-sequence NEWKEYS message, as demonstrated by Honggfuzz, related to kex.c and packet.c.
CVE-2019-6109	4	MEDIUM	AV:N/AC:H/Au:N/C:P/I:P/A:N	45.195.162.194	An issue was discovered in OpenSSH 7.9. Due to missing character encoding in the progress display, a malicious server (or Man-in-The-Middle attacker) can employ crafted object names to manipulate the client output, e.g., by using ANSI control codes to hide additional files being transferred. This affects refresh_progress_meter() in progressmeter.c.
CVE-2016-6210	4.3	MEDIUM	AV:N/AC:M/Au:N/C:P/I:N/A:N	45.195.162.194	sshd in OpenSSH before 7.3, when SHA256 or SHA512 are used for user password hashing, uses BLOWFISH hashing on a static password when the username does not exist, which allows remote attackers to enumerate users by leveraging the timing difference between responses when a large password is provided.
CVE-2020-14145	4.3	MEDIUM	AV:N/AC:M/Au:N/C:P/I:N/A:N	45.195.162.194	The client side in OpenSSH 5.7 through 8.3 has an Observable Discrepancy leading to an information leak in the algorithm negotiation. This allows in-the-middle attackers to target initial connection attempts (where no host key for the server has been cached by the client).
CVE-2016-3115	5.5	MEDIUM	AV:N/AC:L/Au:S/C:P/I:P/A:N	45.195.162.194	Multiple CRLF injection vulnerabilities in session.c in sshd in OpenSSH before 7.2p2 allow remote authenticated users to bypass intended shell-command restrictions via crafted X11 forwarding data, related to the (1) do_authenticated1 and (2) session_x11_req functions.

11. BMA Capital Management is known as a company that provides Iran access to capital markets with direct links publicly discoverable on LinkedIn (found via google on 11/19/2020):

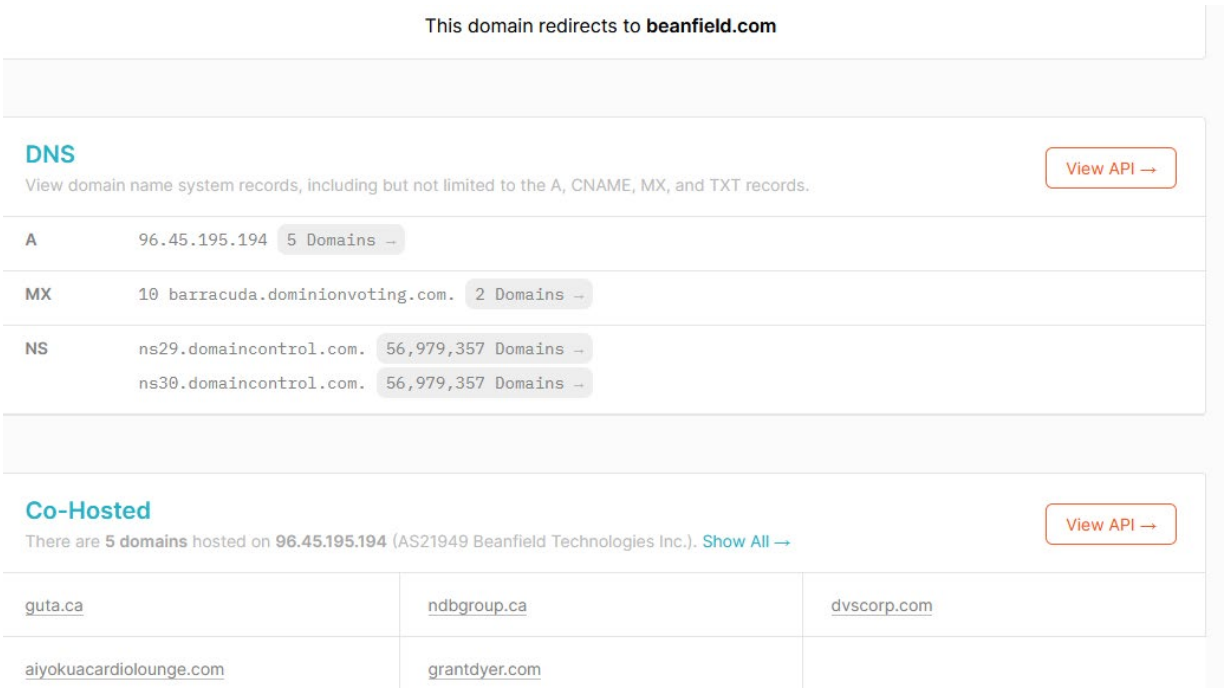


The same Robtex search confirms the Iranian address is tied to the server in the Netherlands, which correlates to known OSINT of Iranian use of the Netherlands as a remote server (See Advanced Persistent Threats: APT33 and APT34):

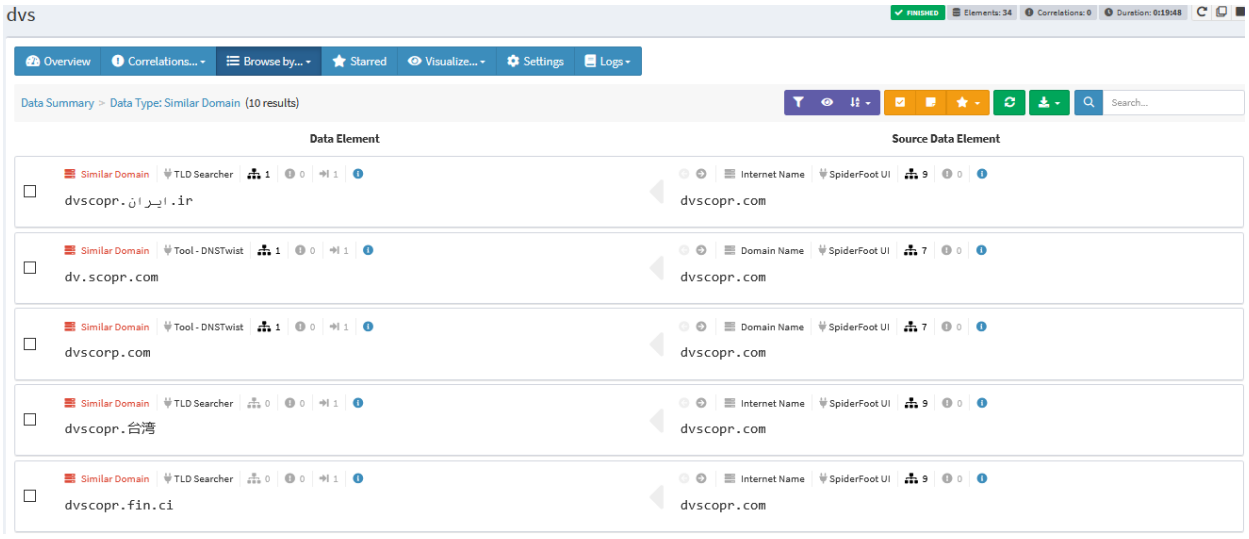
12. A search of the indivisible.org network showed a subdomain which evidences the existence of scorecard software in use as part of the Indivisible (formerly ACORN) political group for Obama:

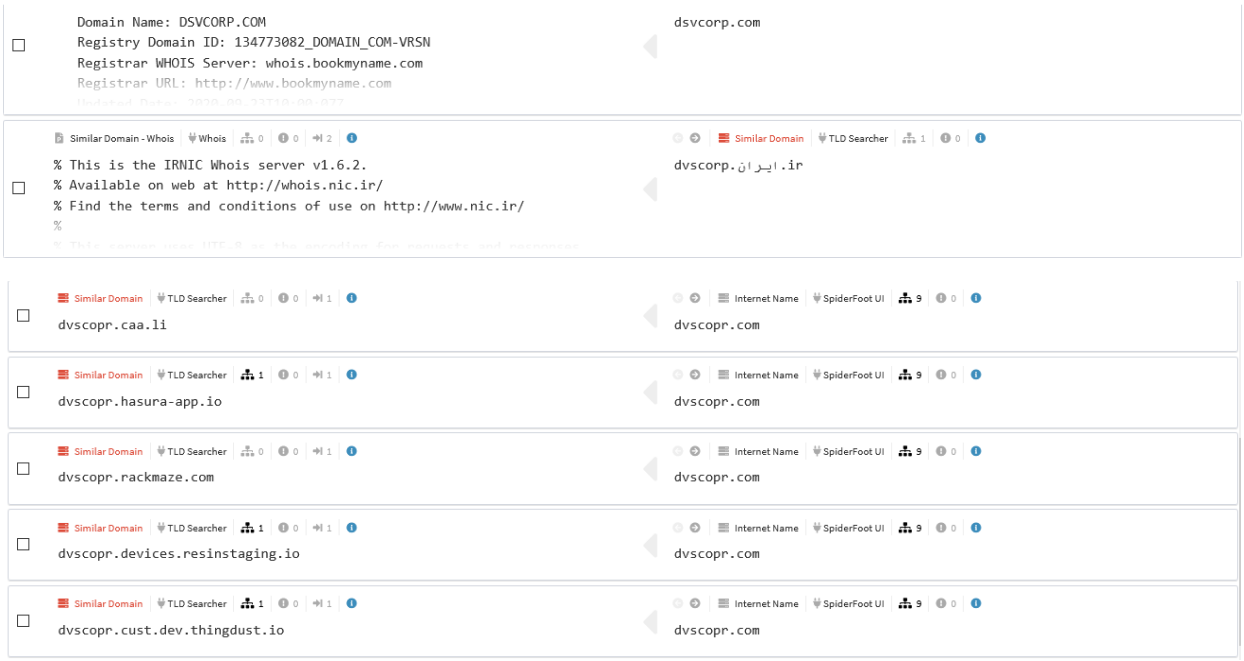


13. Each of the tabulation software companies have their own central reporting "affiliate". Edison Research is the affiliate for Dominion.
14. Beanfield.com out of Canada shows the connections via co-hosting related sites, including dvscorp.com:

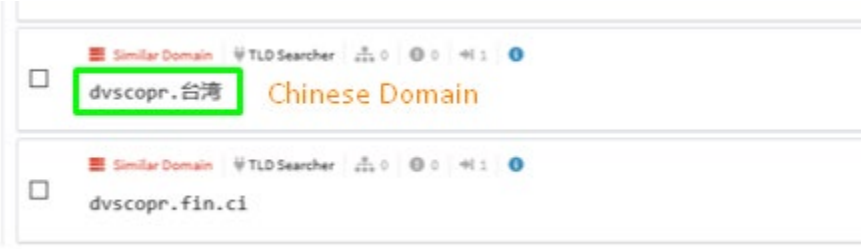


This Dominion partner domain "dvscorp" also includes an auto discovery feature, where new in-network devices automatically connect to the system. The following diagram shows some of the related dvscopr.com mappings, which mimic the infrastructure for Dominion and are an obvious typo derivation of the name. Typo derivations are commonly purchased to catch redirect traffic and sometimes are used as honeypots. The diagram shows that infrastructure spans multiple different servers as a methodology.





The above diagram shows how these domains also show the connection to Iran and other places, including the following Chinese domain, highlighted below:



15. The auto discovery feature allows programmers to access any system while it is connected to the internet once it's a part of the constellation of devices (see original Spiderfoot graph).
16. Dominion Voting Systems Corporation in 2019 sold a number of their patents to China (via HSBC Bank in Canada):

Assignment details for assignee "HSBC BANK CANADA, AS COLLATERAL AGENT"

Assignments (1 total)

Assignment 1

Reel/frame	Execution date	Date recorded	Pages
050500/0236	Sep 25, 2019	Sep 26, 2019	7

Conveyance
SECURITY AGREEMENT

Assignors	Correspondent	Attorney docket
DOMINION VOTING SYSTEMS CORPORATION	CHAPMAN & CUTLER LLP 1270 AVENUE OF THE AMERICAS, 30TH FLOOR ATTN: SOREN SCHWARTZ NEW YORK, NY 10020	

Assignee
HSBC BANK CANADA, AS COLLATERAL AGENT 4TH FLOOR, 70 YORK STREET TORONTO M5J 1S9 CANADA

Properties (18)

Patent	Publication	Application	PCT	International registration
8844813	20130306724	13476836		
8913787	20130301873	13470091		
9202113	20150071501	14539684		
8195505	20050247783	11121997		
9870666	20120232963	13463536		
9710988	20120259680	13525187		
9870667	20120259681	13525208		
7111782	20040238632	10811969		
7422151	20070012767	11526028		
D599131		29324281		

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Of particular interest is a section of the document showing aspects of the nature of the patents dealing with authentication:

Patent assignment 050500/0236

SECURITY AGREEMENT

Date recorded	Reel/frame	Pages
Sep 26, 2019	050500/0236	7

Assignors
DOMINION VOTING SYSTEMS CORPORATION

Execution date
Sep 25, 2019

Assignee
HSBC BANK CANADA, AS COLLATERAL AGENT
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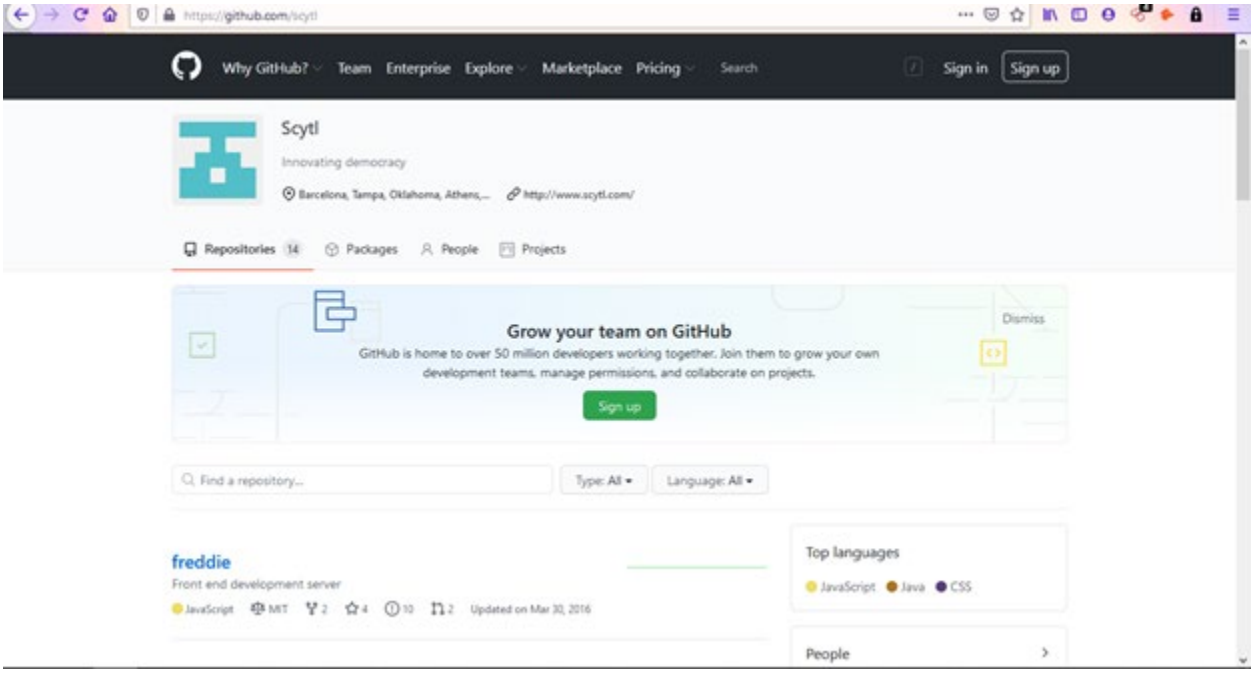
CANADA

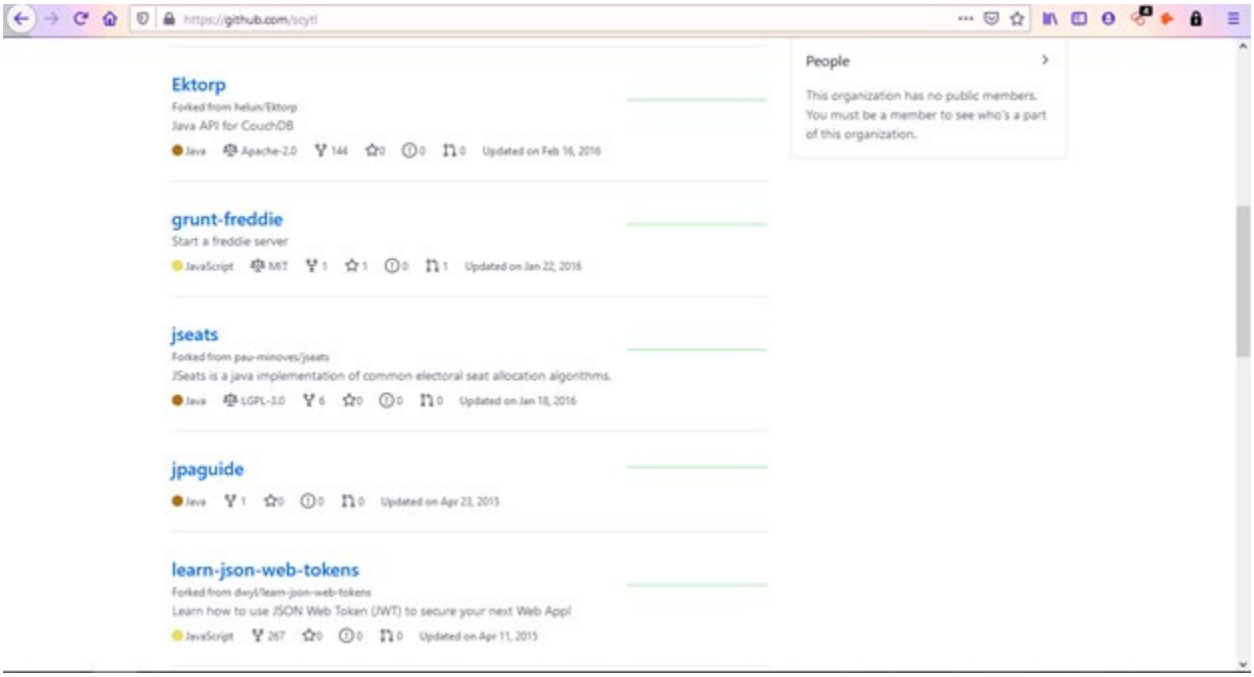
Correspondent
CHAPMAN & CUTLER LLP
1270 AVENUE OF THE AMERICAS, 30TH FLOOR
ATTN: SOREN SCHWARTZ
NEW YORK, NY 10020

Properties (18 total)

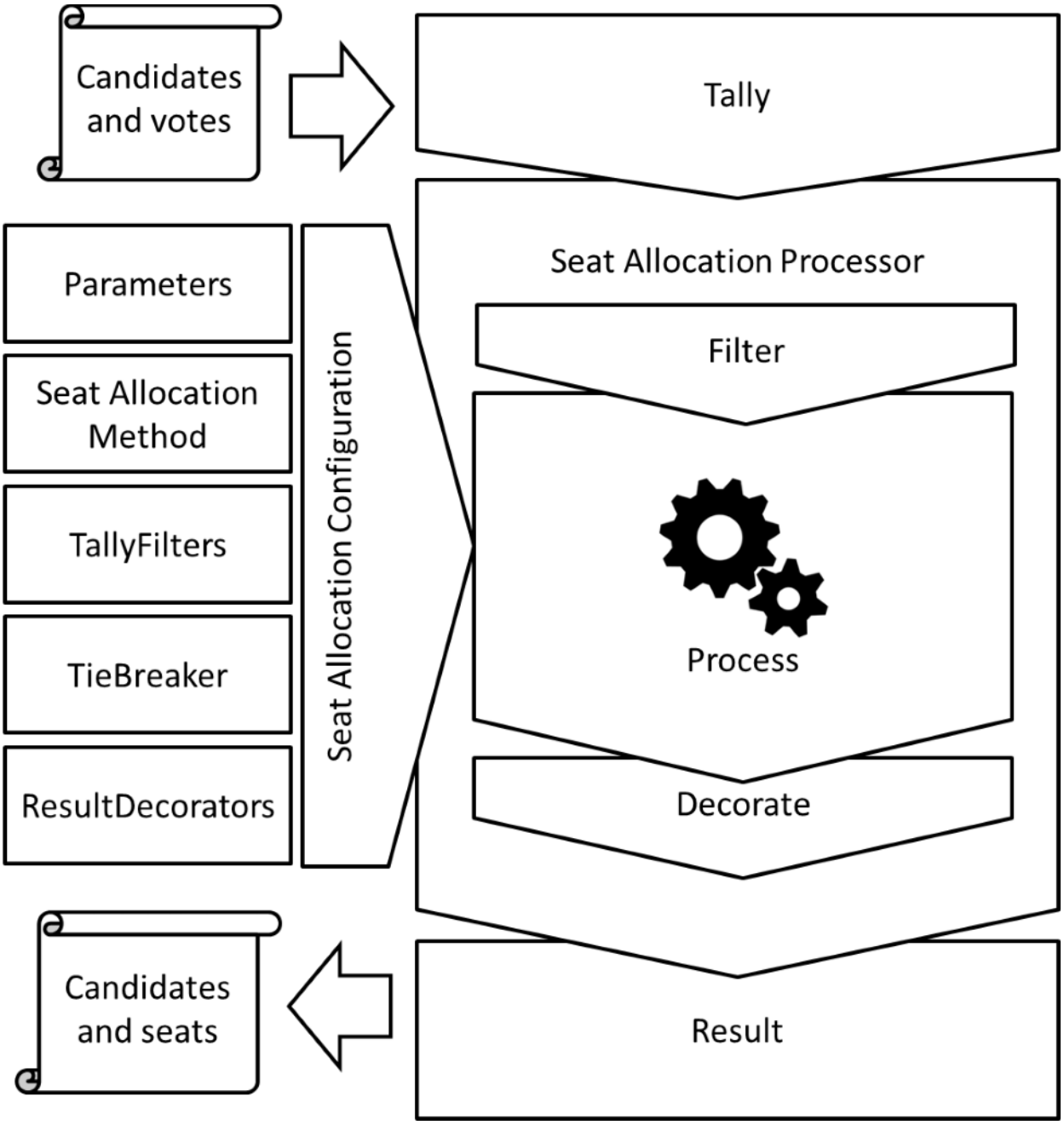
Patent	Publication	Application
1. SYSTEMS AND METHODS FOR PROVIDING SECURITY IN A VOTING MACHINE Inventors: JOHN PAUL HOMEWOOD, THOMAS E. KEELING, PAUL DAVID TERWILLIGER, MARC R. LATOUR		
7111782 Sep 26, 2006	20040238632 Dec 2, 2004	10811969 Mar 30, 2004
2. SYSTEM, METHOD AND COMPUTER PROGRAM FOR VOTE TABULATION WITH AN ELECTRONIC AUDIT TRAIL Inventors: JOHN POULOS, JAMES HOOVER, NICK IKONOMAKIS, GORAN OBRADOVIC		
8195505 Jun 5, 2012	20050247783 Nov 10, 2005	11121997 May 5, 2005
3. SYSTEMS AND METHODS FOR PROVIDING SECURITY IN A VOTING MACHINE Inventors: JOHN PAUL HOMEWOOD, THOMAS E. KEELING, PAUL DAVID TERWILLIGER, MARC R. LATOUR		
7422151 Sep 9, 2008	20070012767 Jan 18, 2007	11526028 Sep 25, 2006
4. BALLOT LEVEL SECURITY FEATURES FOR OPTICAL SCAN VOTING MACHINE CAPABLE OF BALLOT IMAGE PROCESSING, SECURE BALLOT PRINTING, AND BALLOT LAYOUT AUTHENTICATION AND VERIFICATION Inventors: ERIC COOMER, LARRY KORB, BRIAN GLENN LIERMAN		

17. Smartmatic creates the backbone (like the cloud). SCYTL is responsible for the security within the election system.

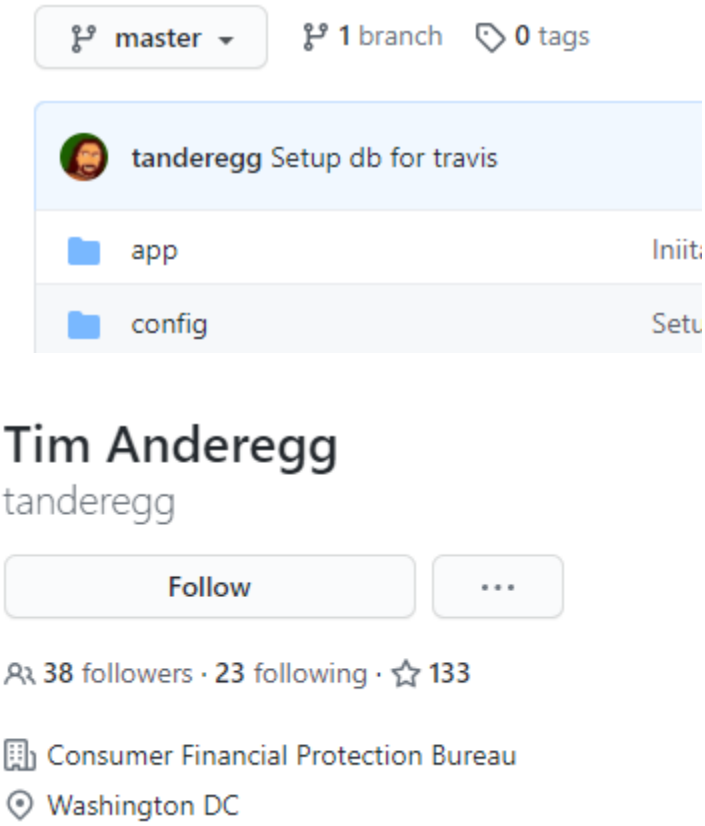




18. In the GitHub account for Scytl, Scytl Jseats has some of the programming necessary to support a much broader set of election types, including a decorator process where the data is smoothed, see the following diagram provided in their source code:



19. Unrelated, but also a point of interest is CTCL or Center for Tech and Civic Life funded by Mark Zuckerberg. Within their github page (https://github.com/ctcl), one of the programmers holds a government position. The Bipcoop repo shows tanderegg as one of the developers, and he works at the Consumer Financial Protection Bureau:



20. As seen in included document titled "AA20-304A-Iranian_Advanced_Persistent_Threat_Actor_Identified_Obtaining_Voter_Registration_Data " that was authored by the Cybersecurity & Infrastructure Security Agency (CISA) with a Product ID of AA20-304A on a specified date of October 30, 2020, CISA and the FBI reports that Iranian APT teams were seen using ACUTENIX, a website scanning software, to find vulnerabilities within Election company websites, confirmed to be used by the Iranian APT teams buy seized cloud storage that I had personally captured and reported to higher authorities. These scanning behaviors showed that foreign agents of aggressor nations had access to US voter lists, and had done so recently.
21. In my professional opinion, this affidavit presents unambiguous evidence that Dominion Voter Systems and Edison Research have been accessible and were certainly compromised by rogue actors, such as Iran and China. By using servers and employees connected with rogue actors and hostile foreign influences combined with numerous easily discoverable leaked credentials, these organizations neglectfully allowed foreign adversaries to access data

and intentionally provided access to their infrastructure in order to monitor and manipulate elections, including the most recent one in 2020. This represents a complete failure of their duty to provide basic cyber security. This is not a technological issue, but rather a governance and basic security issue: if it is not corrected, future elections in the United States and beyond will not be secure and citizens will not have confidence in the results.

I declare under penalty of perjury that the forgoing is true and correct to the best of my knowledge. Executed this November 23th, 2020.

Exh. 9

AFFIDAVIT OF RUSSELL JAMES RAMSLAND, JR

1. My name is Russell James Ramsland, Jr., and I am a resident of Dallas County, Texas. I hold an MBA from Harvard University, and a political science degree from Duke University. I have worked with the National Aeronautics and Space Administration (NASA) and the Massachusetts Institute of Technology (MIT), among other organizations, and have run businesses all over the world, many of which are highly technical in nature. I have served on technical government panels.

2. I am part of the management team of Allied Security Operations Group, LLC, (ASOG). ASOG is a group of globally engaged professionals who come from various disciplines to include Department of Defense, Secret Service, NSA, and the Central Intelligence Agency. We also contract with statisticians when needed. It provides a range of security services, but has a particular emphasis on cybersecurity, open source investigation and penetration testing of networks. We employ a wide variety of cyber and cyber forensic analysts as employees, consultants and contractors. We have patents pending in a variety of applications from novel network security applications to SCADA (Supervisory Control and Data Acquisition) protection and safe browsing solutions for the dark and deep web. For this report, I have relied on these experts and resources.

3. Our team has extensive experience as white hat hackers and employ many methodologies and tools to trace and certify connections between servers, network nodes and other digital properties and probe for network system vulnerabilities. In addition to Robtex and Spiderfoot, we also employ such tools as Whois, GeoIpLookup, nslookup, host, ipinfo.io, etc.

4. I have read the redacted declaration by Spider and can attest to it's credibility and accuracy from our own company's work that has found many of the same connections, relationships and vulnerabilities. Further, Clarity Elections and Scytl are integral to the network as well as Dominion and Edison Research and they too have multiple vulnerabilities and their vulnerabilities represent further vulnerabilities into Dominion and Edison Research.

5. For instance, inside the SCYTL System at a point called staging.scytl.us, malware called QSnatch is visible. QSnatch represents a deep vulnerability to any election system that touches it such as Dominion and Edison Research. QSnatch characteristics include:

- **CGI password logger** - This installs a fake version of the device admin login page, logging successful authentications and passing them to the legitimate login page.
- **Credential scraper** – This grabs the credentials of any administrator whose system loads any information into Scytl or Clarity Elections which includes Dominion and Edison Research. This means the credentials of every county of every state where Dominion manages elections in the U.S. are vulnerable. This includes all of Georgia.
- **SSH backdoor** – This allows the cyber actor to execute arbitrary code on a device.
- **Exfiltration** – When run, steals a predetermined list of files which includes system configuration & log files. Encrypted with hacker's public key and sent to their infrastructure over HTTPS.
- **Webshell functionality** – Allows an attacker remote access

- **Persistence & Mitigation** – The malware itself can make it impossible to run needed firmware updates. Once infected, a full factory reset must be done on the device prior to doing a firmware update to stop vulnerability.

Here is its location:

Here it can be seen embedded:


```
"iid": 14271845,
"type": "ip",
"indicator": "13.32.202.112",
"risk": "none",
"risk_recommended": "none",
"manualrisk": 0,
"retired": null,
"stamp_added": "2020-08-16 07:19:05",
"stamp_updated": "2020-09-21 18:57:23",
"stamp_seen": "2020-09-15 01:15:00",
"stamp_probed": "2020-09-21 18:57:23",
"stamp_retired": null,
```


6. Source code for Dominion can be easily obtained on the dark web so that an attacker knows all the vulnerable points and can plant any malicious code the attacker desires. Here is a small sample of what can be seen on Pirate Bay TORR:


```
"ProductCode","ProductName","ProductVersion","OpSystemCode"
Type"
11818,"OpenElect","1.0","189","1422","English","Voting"
15134,"Hart Voting System Software Files
(BallotNow)","3.3.12","189","2049","English","Voting"
15134,"Hart Voting System Software Files
(BallotNow)","3.3.12","366","2049","English","Voting"
15542,"Open Elect Release","1.2","51","1422","English","Vo
16786,"OpenElect","1.3","51","1422","English","Voting"
17345,"Installed files for D-Suite 4.14-D,WinEDS 3.1.012, \
4.0.175","2016-01-12","786","2530","English","Voting"
17429,"Democracy Suite Election Event Designer (EED) Insta
File","4.14.37","365","2530","English","Voting"
17430,"Democracy Suite ImageCast Central (ICC) Installed
File","4.14.17","365","2530","English","Voting"
17431,"Democracy Suite Adjudication (ADJ) Installed
File","2.4.1.3201","365","2530","English","Voting"
```


7. This situation is especially dangerous and egregious because the Dominion Election Management System's central accumulator does not include a protected real-time audit log that maintains the date and time stamps of all significant election events. Key components of the system

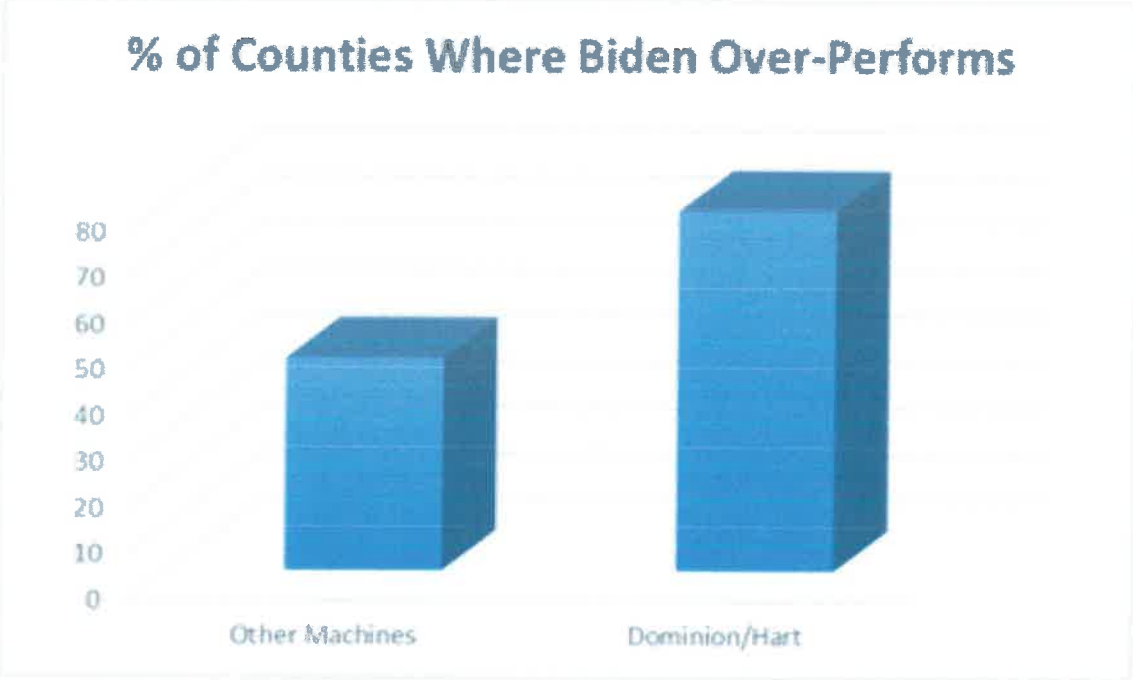
utilize unprotected logs. Essentially this allows the internal operator or an external attacker the opportunity to arbitrarily add, modify, or remove log entries, causing the machine to log election events. The system makes the creation and maintenance of various logs voluntary, so that the user has a choice to "not retain" or "conceal" their actions. Further, when logs are left unprotected and can be altered, they no longer serve the functional purpose of provided a transparent audit log to the public or election officials.

8. With the already observed level of vulnerabilities to malicious actors, internal or external, we decided to look at our data to determine if the election results were the same in counties that used Dominion machines compared to the rest of the counties as a method to determine whether solid evidence existed that Dominion was in fact acting strangely. Our data included votes for each county in the United States and U.S. Census variables from 2017. We conducted multiple regression analysis using U.S. Census data to develop a model/equation to predict in any county what percentage of the vote could reasonably be expected to go to candidate Biden. We tested the model and while naturally the percentage Biden actually achieved in each county fluctuates from the predicted value, we found for most counties the model does a good job in predicting what should be Biden's percentage of votes won. After we developed our predictive model, we obtained a data file from the U.S. Election Assistance Commission showing the voting machines used by each county in the United States.

9. Our first test looked at Biden performance by machine type. To aid in this research we calculated the number of percentage points Biden was over or under our predicted value in each county. Our initial analysis

then examined Biden's over/under performance against voting machine type. The results for any machine type should average around zero. The results for most machine types are as we would expect; Biden's over/under performance averages near zero for most counties/machines. **However, the election results from counties using Hart machines and the ImageCast X/ICX BMD from Dominion Voting Systems have an abnormally high average of over-achievement by candidate Biden.**

10. The following graph shows that in counties that used the Hart machine or the Dominion BMD device, Biden's performance was approximately five percentage points higher (Dominion BMD) or six percentage points higher (Hart) than it should have been. **In Georgia this translates into 123,725 votes that are statistically invalid.**



11. Next, we counted, for each machine type, the number of counties in which Biden over-performs expectations and the number of counties in

which he under-performs. In normal circumstances any candidate should perform above expectations roughly 50% of the time and under-perform roughly 50% of the time. We see this normal result in the "Other" machine counties, with candidate Biden performing "above" expected values 46% of the time. However, in the Dominion/Hart machine counties, Biden performs above expectations 78% of the time. **This is highly indicative (and 99.9% statistically significant) that something strange is occurring with the Dominion/Hart machines**.

12. We checked this finding by doing a CHAID analysis (Chi-Squared Automatic Interactions Detection) where the CHAID algorithm searched through the different types of voting machines used – and grouped the machines together that show similar results. **We saw that ultimately, in counties using the Dominion or Hart machines, Biden received 5.5 percentage points higher than he was expected to achieve** – or likely **would have achieved if the counties used any other type of machine. This represents 136,098 votes that are in serious question. This was very much in line with our previous findings of a 5% advantage when using Dominion equipment in paragraph 10 above.** The above findings are statistically significant at the 99.9% level or higher.

13. The next question to answer was whether this average of 5.5% was from relatively few counties having extraordinarily high results for Biden, or if several of the "Dominion" counties were showing unusually high results. The graph below clearly shows that the votes from counties using Dominion machine follows a distinct and unusual pattern, which is in fact a very predictable mathematical pattern. This is consistent with our findings in Michigan on Dominion machines where its clear the

RCV algorithm was used to allocate votes, instead of the winner being decided by the votes themselves (see paragraph 16). If the Dominion counties were acting as they should – like all the other counties – then the green dots (representing Biden's results in counties with Dominion/Hart machines) in the graph below would overlay the blue dots (Biden results in all other counties) in a similar, "mixed up"/random fashion. But we do not see this. Instead, we see the green dots centered higher than the center of the blue dots, meaning the Dominion counties were, on average, performing continuously above the predicted values for Biden had the counties using any other machines. **This indicates the fraud was widespread** and impacted vote counts in a systematic method **across many machines and counties.**

Graph: Dominion/Hart BMD Machines vs. Other Machines
(Green = Dominion/Hart, Blue = All Others)

14. Further research indicated many other red flags in Georgia itself providing evidence that the system's many vulnerabilities were indeed being exploited by actors internal or external in the 2020 election.

15. The first red flag comes from mail-in ballots dates. The voter records of the counties show that 96,600 mail-in ballots were voted, yet the county records show they were never received back. Further, 42 mail-in ballots were received back completed *before* they were mailed out to the voter by the county, 1,887 mail-in ballots were received back completed *the same day* they were mailed out to the voter by the county, 1,786 mail-in ballots were received back completed *one day after* they were mailed out to the voter by the county and 2,275 mail-in ballots were received back completed only *two day after* they were mailed out to the voter by the county. This impossible phenomenon occurred throughout the counties of Georgia and were not an isolated event. Following is a summary:.

GEORGIA MAIL-IN BALLOT ISSUES

Ballots received back completed BEFORE they were mailed out	42
Ballots received back completed THE SAME DAY they were mailed out	1,887
Ballots received back completed ONE day after they were mailed out	1,786
Ballots received back completed TWO days after they were mailed out	2,275
Total Ballots with impossible mail out and received back completed dates	**5,990**

Ballots with NO RETURN RECORD AT ALL	231,188
Ballots with NO RETURN RECORD & Cancelled	134,588
Ballots with NO RETURN RECORD & Voted	**96,600**
	231,188

Therefore, from this data I conclude to a reasonable degree of professional certainty that at least 96,600 votes were illegally counted in the Georgia general election.

16. The following data from Michigan strongly suggests that the additive algorithm (a feature enhancement referred to as "ranked choice voting algorithm" or "RCV") was activated in the code as shown in the Democracy Suite EMS Results Tally and Reporting User Guide, Chapter 11, Settings 11.2.2. It reads in part, "RCV METHOD: This will select the specific method of tabulating RCV votes to elect a winner". For instance, blank ballots can be entered into the system and treated as "write-ins." Numerous reports of write-in votes mysteriously appearing on poll closing tapes have been reported by poll workers, such as that of Keith Kaminski of Detroit, MI, attached. The operator can then enter an allocation of the write-ins among candidates as he or she wishes. The result then awards the winner based on "points" that the algorithm computes, not actual voter votes. The fact that we observed raw vote data in the Edison Research feed and data coming directly from the Dominion data feed that includes decimal places proves that the winner was selected by an algorithm, and not individual voter's choice. Otherwise, votes would be solely represented as whole numbers (votes cannot possibly be added up and have decimal places reported). Below is an excerpt from Dominion's direct feed to news outlets showing actual calculated votes with decimals. Use of the RCV algorithm is completely consistent with the mathematical advantage for Biden when using Dominion or Hart equipment as demonstrated in paragraphs 9, 10, 11 and 12 above.

state	timestamp	eevp	trump	biden	TV	BV
michigan	2020-11-04T06:54:48Z	64	0.534	0.448	1925865.66	1615707.52
michigan	2020-11-04T06:56:47Z	64	0.534	0.448	1930247.664	1619383.808

michigan	2020-11-04T06:58:47Z	64	0.534	0.448	1931413.386	1620361.792
michigan	2020-11-04T07:00:37Z	64	0.533	0.45	1941758.975	1639383.75
michigan	2020-11-04T07:01:46Z	64	0.533	0.45	1945297.562	1642371.3
michigan	2020-11-04T07:03:17Z	65	0.533	0.45	1948885.185	1645400.25

17. In my professional opinion, this presents unambiguous evidence that Dominion Voter Systems, Edison Research, Clarity Elections and Scytl have been accessible and were certainly compromised by rogue actors, such as Iran and China among others. Numerous easily discoverable leaked credentials combined with servers and employees connected with rogue actors and hostile foreign influences neglectfully allowed foreign adversaries to access data and intentionally provided access to their infrastructure in order to monitor and manipulate elections without a trace due to poor or changeable audit logs, including the most recent election in 2020. This represents a complete failure of their duty to provide basic cyber security. This is not a technological issue, but rather a governance and basic security issue. This 2020 election was not secure and citizens should not have confidence in the results.

18. Based on the foregoing, we believe this presents unambiguous evidence that using multiple statistical tools and techniques to examine if the use of voting machines manufactured by different companies affected 2020 US election results, we found the use of the Dominion X/ICX BMD (Ballot Marking Device) machine, manufactured by Dominion Voting Systems, and machines from HART InterCivic, appear to have abnormally influenced election results and **fraudulently and erroneously attributed from 123,725 to 136,098 votes to Biden in**

Georgia. Those votes must be disregarded when tabulating the election results.

Key Findings:

- In counties using Dominion BMD voting machines, candidate Biden appears to have consistently received 5% more votes than he should have received
- Biden over-performed predicted/expected values in 78 % of the counties that used Dominion or Hart machines. In counties with other machines, Biden over-performed only 46% of the time (anything close to 50% is normal/expected)

19. Based on the foregoing, I believe that these statistical anomalies and impossibilities compels the conclusion to a reasonable degree of professional certainty that the vote count in Georgia for candidates for President contain **at least 96,600, and as many as 136,098 illegal votes that must be disregarded.**

Further Affiant sayeth naught

Dated: 11/25/2020

Russell James Ramsland, Jr.

Sworn to before me 11/25/2020

Sarah Agee

SARAH AGEE
Notary Public, State of Texas
Comm. Expires 08-20-2022
Notary ID 131688896

Exh. 10

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

L. LIN WOOD, JR.,	)	
	)	
Plaintiff,	)	**CIVIL ACTION FILE NO. 1:20-cv-04651-SDG**
	)	
v.	)	
	)	
BRAD RAFFENSPERGER, in his official capacity as Secretary of State of the State of Georgia, REBECCA N. SULLIVAN, in her official capacity as Vice Chair of the Georgia State Election Board, DAVID J. WORLEY, in his official capacity as a Member of the Georgia State Election Board, MATTHEW MASHBURN, in his official capacity as a Member of the Georgia State Election Board, and ANH LE, in her official capacity as a Member of the Georgia State Election Board,	)	
	)	
Defendants.	)	
_____	)	

AFFIDAVIT OF MAYRA ROMERA IN SUPPORT OF PLAINTIFF'S MOTION FOR TEMPORARY RESTRAINING ORDER

I, Mayra Romera, declare under penalty of perjury that the following is true and correct:

1. I am over the age of 18 years and competent to testify herein. I have personal knowledge of the matters stated herein.

2. I am a Florida Bar licensed paralegal.

3. I am a registered Democrat.

4. I was interested in the election process in this country and wanted to be an observer in the Georgia recount process.

5. On Monday, November 16, 2020, I presented myself to Cobb County Poll Precinct located at 2245 Callaway Road SW, Marietta, GA. I was able to be on the floor observing the recount process in Room C. I observed the poll workers not calling out verbally the names on each ballot. They simply passed each ballot to each other in silence.

6. It was of particular interest to me that hundreds of these ballots seemed impeccable, with no folds or creases. The bubble selections were perfectly made (all within the circle), only observed selections in black ink, and all happened to be selections for Biden.

7. It was also of particular interest to me to see that signatures were not being verified and there were no corresponding envelopes seen in site.

8. At one point in time, while on the floor, I overheard a woman tell someone else that they should keep an eye on the guy with a blue blazer and a pocket square, that he was not allowed to come on the floor and observe past the yellow tape. They also kept an eye on him as he took photographs and video of some boxes being stored on a rack. Shortly thereafter, I observed a police officer standing at the door. I had not observed a police officer present up until that moment. They began to walk towards him to stop him as he was photographing those boxes, but at that point, he walked away from that area.

9. Based on my observations, I believe there was fraud was committed in the presidential election and question the validity of the Georgia recount process.

[SIGNATURE AND OATH ON NEXT PAGE]

I declare under penalty of perjury that the foregoing statements are true and correct.

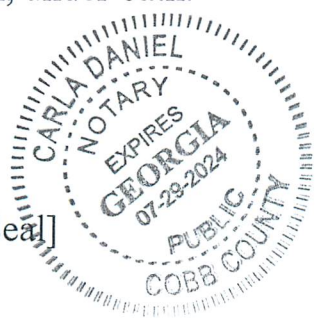
Mayra L. Romera

STATE OF GEORGIA

COUNTY OF FULTON

Mayra L. Romera appeared before me, a Notary Public in and for the above jurisdiction, this 17th day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal]



Notary Public

My Commission Expires 07-29-2024

Exh. 11

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

L. LIN WOOD, JR.,	)	
	)	
Plaintiff,	)	**CIVIL ACTION FILE NO.**
	)	**1:20-cv-04651-SDG**
v.	)	
	)	
BRAD RAFFENSPERGER, in his official capacity as Secretary of State of the State of Georgia, REBECCA N. SULLIVAN, in her official capacity as Vice Chair of the Georgia State Election Board, DAVID J. WORLEY, in his official capacity as a Member of the Georgia State Election Board, MATTHEW MASHBURN, in his official capacity as a Member of the Georgia State Election Board, and ANH LE, in her official capacity as a Member of the Georgia State Election Board,	)	
	)	
Defendants.	)	

AFFIDAVIT OF AMANDA COLEMAN IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER

I, Amanda Coleman, declare under penalty of perjury that the following is true and correct:

1. I am over the age of 18 years and competent to testify herein. I have personal knowledge of the matters stated herein.

2. I volunteered to be a monitor for the Donald J. Trump Presidential Campaign, Inc. (the "Trump Campaign") in connection with what was identified to me as the "hand count" of votes cast in the November 3, 2020 presidential election. I was assigned to monitor the hand count on November 15, 2020 by Alyssa Specht from the Trump Campaign, on behalf of the Georgia Republican Party (the "Republican Party").

3. Ms. Edmunds of the Republican Party told to arrive at 285 Andrew Young International Blvd. between 8:00 a.m. and 9:00 am on the morning of November 15. The address was for the Georgia World Congress Center, and there was no exterior activity at that address when I arrived. There were no instructional or directional signs.

4. After I made a series of phone calls ending with Matthew Honeycutt, he gave me directions to go to the bottom rear of the building to an "employee entrance." I arrived at 9:00 a.m.

5. As I arrived, a large crowd was leaving, saying that they had "just finished" the hand recount.

6. Another volunteer and I walked into the counting area to verify what had been said and to observe any activity, as we had been requested to do. Some counting activity appeared to still be going on.

7. We signed in, and then were told that there were "too many" volunteers on the floor and that we would not be permitted to walk the floor and observe.

8. I saw a few people here and there walking the floor. But there were no other observers at the tables where counting activity was happening. There were two people per table and they appeared to be sticking ballots into piles. We were not close enough to see much of anything else because we were not allowed.

9. I believed that we were there to watch actual "hand counting" as had been announced in the newspapers and by the Secretary of State when he requested a "hand count."

10. There was no way to tell if any counting was accurate or if the activity was proper.

[SIGNATURE AND OATH ON NEXT PAGE]

I declare under penalty of perjury that the foregoing statements are true and correct

Amanda Coleman

Amanda Coleman

STATE OF GEORGIA

COUNTY OF FULTON

Amanda Coleman, appeared before me, a Notary Public in and for the above jurisdiction, this 16th day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal]

CARLA DANIEL NOTARY PUBLIC COBB COUNTY GEORGIA EXPIRES 07-29-2024

Carla Daniel

Notary Public

My Commission Expires 07-29-2024

Exh. 12

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF GEORGIA

ATLANTA DIVISION

L. LIN WOOD, JR.,	)	
	)	
Plaintiff,	)	CIVIL ACTION
	)	FILE NO. _____
v.	)	
	)	
BRAD RAFFENSPERGER, in his official capacity as Secretary of State of the State of Georgia, REBECCA N. SULLIVAN, in her official capacity as Vice Chair of the Georgia State Election Board, DAVID J. WORLEY, in his official capacity as a Member of the Georgia State Election Board, MATTHEW MASHBURN, in his official capacity as a Member of the Georgia State Election Board, and ANH LE, in her official capacity as a Member of the Georgia State Election Board,	)	
	)	
Defendants.	)	
_____	)	

AFFIDAVIT OF MARIA DIEDRICH IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER

I, Maria Diedrich, declare under penalty of perjury that the following is true and correct:

1. I am over the age of 18 years and competent to testify herein. I have personal knowledge of the matters stated herein. I am a resident of Fulton County.

2. I volunteered to be a monitor for the Donald J. Trump Presidential Campaign, Inc. (the "Trump Campaign") in connection with what was identified to me as the "hand count" of votes cast in the November 3, 2020 presidential election. I was assigned to monitor the hand count on November 14 and 15, 2020 by Alyssa Specht from the Trump Campaign, on behalf of the Georgia Republican Party (the "Republican Party").
3. I believed that we were there to watch actual "hand counting" as had been announced in the newspapers and by the Secretary of State when he requested a "hand count."
4. On November 15, 2020, I arrived at the Georgia world Congress Center at 8:00 a.m. to monitor the hand counting. By 9:15 a.m., officials announced that voting was complete and sent everyone home. I spoke to a security guard who was shocked because he planned to be there until 10 p.m. He had been at that location until 10:00 p.m. on the previous night.
5. The officials announced that they had counted all the absentee on November 14 at night and they were already boxed up.
6. The only ballots left to count (for me to observe) were electronic ones, which were being counted in stacks or rows (not consistent).

7. There was no consistency on counting. Only a few tables (of the 170+) were verbally doing the pass count, so there was no way to see that the correct candidate was being put into the correct pile.

8. I observed (and told an election worker) that one counter seemed to be making piles of 9 (but counting them as 10). It took a while for me to get someone to help me, so by the time they came to observe him, the batch was counted and they did not make him recount the stack.

9. Counters were writing the number of ballots for each candidate on scrap paper (no one had the same paper, some was torn, some was colored) and then adding manually. This is where I noticed some manual entry errors, specifically when an elderly counter wrote down the number ballots, she couldn't remember the number, the person with her said a different number, they finally agreed on a number, she added numbers on a scratch paper before putting the number onto the official Audit Board Batch Sheet.

10. The batch sheets were taken to Arlo to input but there was no independent verification or monitoring of the numbers being input.

11. Five times between 8:00 a.m. and 9:00 a.m., I noticed tables with ballots on the table, but both workers had gone to get food. The ballots were left unattended. Drinks were on the tables with ballots. I noticed two tables of a

single person counting, the partner had gone to get food. After I mentioned this to the election official, they told both tables to wait.

12. At 9:00 a.m., county officials announced that there were too many party monitors and asked the Republican watchers to gather and decide which 17 would be on the floor. There were only 2 paid Republican campaign workers and they tried to organize 17 from about 30 total personnel who had volunteered. Within 10 minutes, we had completed the reorganization.

13. At that point, county officials told most of the counters to go home. There were probably 10 tables still counting.

14. There had been no meaningful way to review or audit any activity.

[SIGNATURE AND OATH ON NEXT PAGE]

I declare under penalty of perjury that the foregoing statements are true and correct.

Maria Diedrich

Maria Diedrich

STATE OF GEORGIA

COUNTY OF FULTON

Maria Diedrich , appeared before me, a Notary Public in and for the above jurisdiction, this 16th day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal]

CARLA DANIEL NOTARY PUBLIC COBB COUNTY GEORGIA EXPIRES 07-29-2024

Carla Daniel

Notary Public

My Commission Expires 07-29-2024

Exh. 13

Fill out and mail to: *Every Legal Vote - Integrity Project 11816 Inwood Dr. Suite 231, Dallas, TX, 75244*
Scan the Executed Sworn Affidavit and email FraudReport@EveryLegalVote.com

AFFIDAVIT

STATE OF _____Georgia_____ §
§
COUNTY OF __Fulton_____ §

BEFORE ME, the undersigned, on this date personally appeared B. Trinh Ha, known to me to be the person whose name is subscribed to the following Affidavit and who, after being duly sworn by me, stated upon his or her oath as follows:

"My name is: _____Ursula V. Wolf_____.

___On October 13, 2020 I went to early vote at the Alpharetta Library located at 10 Park Plaza, Alpharetta, GA 30009. The lines were long. Clerk informed those in line that the computers were freezing and that only 2 poll pads were functional and thus the slow process. After a 3 hour wait, my turn to get my vote card came up. I presented my GA DL and it was scanned at the poll pad. At which time poll worker James Campbell told me that I had already voted. I told him I absolutely have not. He then asked if I had requested an absentee ballot and I replied no. He attempted to make an entry on the poll pad only to tell me that the poll pad was frozen. He gave me an affidavit to sign and told me he was adding me to the list of manual ballots in his computer and gave me a vote card from the table without being processed thru the poll pad. I asked who had voted for me and if there was an explanation for the error, he indicated he could not tell what the problem was__."

B. TRINH HA NOTARY PUBLIC GEORGIA FULTON COUNTY EXPIRES 2021

Signature: [signature]

Printed Name: Ursula V. Wolf

SUBSCRIBED AND SWORN to before me on the 20th day of November, 2020.

[signature]
Notary Public in and for the
State of GA.

My Commission Expires:
05/04/2021

Exh. 14

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

L. LIN WOOD, JR.,	)	
	)	
Plaintiff,	)	**CIVIL ACTION FILE NO.**
	)	**1:20-cv-04651-SDG**
v.	)	
	)	
BRAD RAFFENSPERGER, in his official capacity as Secretary of State of the State of Georgia, REBECCA N. SULLIVAN, in her official capacity as Vice Chair of the Georgia State Election Board, DAVID J. WORLEY, in his official capacity as a Member of the Georgia State Election Board, MATTHEW MASHBURN, in his official capacity as a Member of the Georgia State Election Board, and ANH LE, in her official capacity as a Member of the Georgia State Election Board,	)	
	)	
Defendants.	)	
_____	)	

AFFIDAVIT OF NICHOLAS J. ZEHER IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER

I, Nicholas J. Zeher, declare under penalty of perjury that the following is true and correct:

1. I am over the age of 18 years and competent to testify herein. I have personal knowledge of the matters stated herein.

2. I am an attorney licensed to practice law in the state of Florida.

3. On Sunday November 15, 2020 Alyssa Specht appointed me to serve as a Monitor for the duration of the Risk Limiting Audit in DeKalb County (the "DeKalb Appointment Letter"). A true and accurate copy of the appointment letter is attached to this Affidavit as **Exhibit "A."**

4. On Sunday at around 12:30 p.m., I showed up to 2994 Turner Hill Road, Stonecrest, Georgia 30038 to begin observing as a Monitor. Prior to my arrival, I was sent a handout titled "Audit/Recount Monitor and Vote Review Panel Handout" which outlined the rules in place as well as provided guidelines for observation. A true and accurate copy of the Audit/Recount Monitor and Vote Review Panel Handout is attached to this Affidavit as **Exhibit "B."**

5. After signing in and providing the DeKalb appointment letter to the check-in desk, I was permitted to roam throughout the facility to conduct observations.

6. The first thing I noticed was signs taped to each table (the "Review Table" or "Review Tables") indicated a place for ballots for Trump, Biden, and Jorgenson and other signs for "Blanks" (no vote for President) or overvotes (multiple votes for President). At each Review Table were two people

manually reviewing each ballot (the "Recounter"). The first Recounter would pick up the ballot and orally announce which candidate the ballot was cast for. The first Recounter would then pass the ballot to the second Recounter who would again orally announce which candidate the ballot was cast for. The ballot was subsequently placed in the pile designated for that candidate as discussed above.

7. Due to the COVID restrictions, we were instructed to stay a minimum of six feet away from any Recounter sitting at one of the Review Tables.

8. The ballots would be brought to the Review Table in a cardboard box by another worker. I was never able to get close enough to read any writing on any of the cardboard boxes. After the carboard box was opened, stacks of ballots were removed and placed on the Review Table. There were notes on each stack but again, I was never able to get close enough to read what was written.

9. Once the stack of ballots was on the Review Table, the process of reviewing the ballot began in the manner outlined above in paragraph 6.

10. At no time did I witness any Recounter or any individual participating in the recount verifying signatures.

11. If one of the Recounters encountered a ballot that was questionable, he or she raised a piece of paper with a "?" and what seemed to be a supervisor would come to that Review Table. A short conversation was had and the supervisor would provide the Recounters with instructions. Again, I was never able to get close enough to hear what was said.

12. When a Review Table completed reviewing a cardboard box full of ballots, one of the Recounters would write some information (I assume it was the number of ballots for each candidate the box contained) on a piece of paper and place it on top of the cardboard box. Then one of the Recounters would hold a piece of paper with a "√" (check mark) on it in the air and someone would come pick up the box full of ballots.

13. There was no person verifying the number of votes that the Recounter would write on the paper.

14. At one point, I was able to get close enough to a Review Table to see the ballots and the markings on them. It was strange—there were many ballots where just Joseph Biden was filled in and no other candidate whatsoever.

15. At another table, I watched the Recounters pull out a stack of ballots that appeared to be strange too. The bubble filled out for Joseph Biden looked to be a perfect black mark.

16. I spoke to other Observers present that day and they had witnessed the same thing. Other Observes also informed me that fellow Observers were removed for getting too close to the Review Tables. That when they would get close enough to see what was actually filled in on the ballot, one of the Recounters would begin making a big scene and call over a supervisor. The supervisor would then remove the Monitor permanently.

17. While in DeKalb County, I saw a lot of hostility towards Republicans and none towards Democrats.

18. On the evening of November 15, 2020, Alyssa Specht appointed me as an Monitor in Henry County for the whole duration of the Risk Limiting Audit ("Henry County Appointment Letter"). A true and accurate copy of the Henry County Appointment Letter is attached to this Affidavit as **Exhibit "C."**

19. I arrived at 562 Industrial Boulevard, McDonough, Georgia 30253 at around 9:30 a.m.

20. When I entered the building, I was halted by a woman at the door who immediately informed me that I was not needed and that all the position had been filled. At this time, the woman neither asked who I was nor why I was present. I asked this woman to speak to the person in charge.

21. Within a few seconds, I was greeted by Ameika Pitts ("Ms. Pitts"), Henry Country's Elections Director. Ms. Pitts informed me that my assistance was not needed, and I was free to go. Again, this was told to me prior to her asked why I was there and who I was.

22. I then pulled the Henry County Appointment Letter up on my phone and presented it to her. Ms. Pitts immediately told me that I was not able to have my phone inside the building even though the recount was allegedly being "live streamed." After a brief conversation, I send Ms. Pitts a copy of the letter and was permitted to enter the building, but only in the public observation area.

23. Fortunately, after speaking to several Republican Party volunteers, Ms. Pitts was provided my name from the Henry County Republican Chairwoman and I was permitted to enter into the observation area.

24. Once inside the observation area, I saw that it was set up very similar to DeKalb County with the Review Tables having the same designations and each Review table having two Recounters as described in paragraph 6 above.

25. As I began walking around, I noticed several differences between DeKalb County and Henry County. In Henry County, the ballots were brought to each Review Table in a red, plastic box with security ties used to hold the

box closed. Those ties were cut, and the ballots were then removed and placed on top of the Review Table in stacks that were wrapped in a rubber bands and had a pink sticky note on each stack which displayed the number of ballots each stack contained. The Recounter would then remove the rubber band and sticky note and begin counting the same was described in paragraph 6 above.

26. At around 12:05 p.m. I was observing table "G" when the two recount workers sorted a pile of ballots that had a note which said "93" as the number of ballots. When the two workers finished sorting and counting the ballots, there were only 92. The director of the election committee, Ms. Pitts came to the two workers and simply signed a separate sheet of paper saying that there were only 92 ballots. Ms. Pitts never recounted to make sure. This happened several times and Ms. Pitts informed us that she has been directed to just sign off on the number of ballots the recount worker said was there.

27. While in Henry County, I personally witnessed ballots cast for Donald Trump being placed in the pile for Joseph Biden. I witnessed this happen at table "A."

28. I interviewed a few Observers that same day who informed me that on multiple occasions, Recounters at tables "A," "B," "G," and "O" were seen

placing ballots cast for Donald Trump placed in the pile for Joseph Biden. When this was brought to Ms. Pitts attention, it was met with extreme hostility. At no time did I witness any ballot cast for Joseph Biden be placed in the pile for Donald Trump.

29. Based on my personal observations, I believe that additional absentee ballots were cast for Donald Trump but counted for Joseph Biden. I further believe that there was widespread fraud favoring Joseph Biden. This is my personal experience.

[SIGNATURE AND OATH ON NEXT PAGE]

I declare under penalty of perjury that the foregoing statements are true and correct

Nicholas J. Zeher

STATE OF FLORIDA

COUNTY OF PALM BEACH

Nicholas Zeher, appeared before me, a Notary Public in and for the above jurisdiction, this 17th day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal]

Notary Public

My Commission Expires_____

ROBERT N. ALLEN, JR.
MY COMMISSION # GG 221322
EXPIRES: July 9, 2022
Bonded Thru Notary Public Underwriters

Exhibit A

GAGOP

November 15, 2020

Monitor Designee – Risk Limiting Audit

To Whom it May Concern:

This letter serves as proper notice, pursuant to O.C.G.A. § 21-2-408, § O.C.G.A. 21-2-483, State Election Board Rule 183-1- 13-.06, and/or State Election Board Rule 183-1-14-0.9-.15. The listed designees are to serve as a Monitor for the whole duration of the Risk Limiting Audit in DeKalb County:

- William McElligott
- Oleg Otten
- Kevin Peterford
- Nicholas Zeher
- Scott Strauss
- Michael Sasso

David J. Shafer
Chairman

Michael Welsh
Secretary

Exhibit B

Audit/Recount
Monitor and Vote Review Panel Handout

Audit Observer Handout

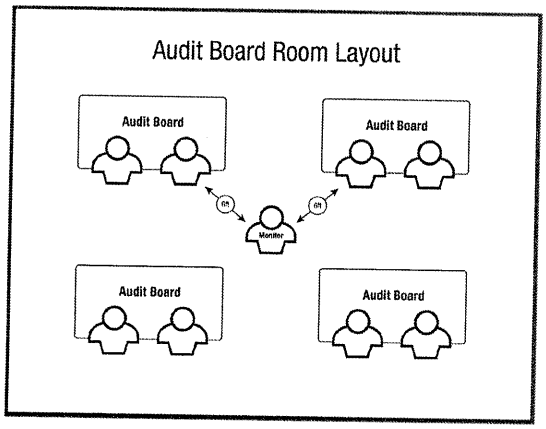
Arrival:

- Arrive 30 minutes prior to the start of your shift.
- The public is to watch the opening procedures before the audit begins and after the audit ends for the day.
- Be respectful and professional, not adversarial.

Audit Observers/Designated Monitors:

- Each political party may have one designated monitor per 10 Audit Teams or a minimum of two designated monitors per room.
- Designated monitors may roam the audit room and observe the audit process
- Observe the Check-in and Check-out process of the ballots
- Must wear badges that identify them by name.
- Are allowed to observe but may not obstruct orderly conduct of election.
- May not speak to or otherwise interact with election workers.
- Are not allowed to wear campaign buttons, shirts, hats or other campaign items.
- Do not touch any ballot or ballot container
- Observe and ensure the room is properly set-up, the Audit Teams are completing their tasks, and the Table is set up properly (see below).
- **Must pose questions regarding procedures to the clerk/election worker for resolution.**

Room Set up



Audit Teams Responsibilities

When reviewing a ballot and determining the voter's mark, audit boards must consider "if the elector has marked his or her ballot in such a manner that he or she has indicated clearly and without question the candidate for whom he or she desires to cast his or her vote." O.C.G.A. 21-2-438(c).

As a batch is delivered from the check-in/out station:

- Record the County Name, Batch Name, and Batch Type (Absentee, Advanced Voting, Provisional, Election Day), and verify the container was sealed on the Audit Board Batch Sheet.

- Unseal the container.
- Recount the Ballots using the "Sort and Stack" method:
    - Pull the ballots out of the container and stack neatly on the table.
        - If the container contains more than 1000 ballots, ballots should be removed from the container and sorted in manageable stacks (using an Audit Board Batch Sheet for each stack), leaving the rest of the ballots in the container until the previous stack is done.
        - For each ballot: audit board member (ABM) #1 picks up a single ballot from the stack and reads the vote for the Presidential contest aloud, then hands the ballot to ABM #2. ABM #2 verifies the vote that is on the ballot is indeed what ABM #1 read, then places the ballot in the "stack" that corresponds to the vote. ABM #1 should watch to make sure the ballot is placed in the right stack. There will be 8 stacks as follows:
            - Trump
            - Biden
            - Jorgensen
            - Overvoted ballots - one pile for any ballot where the voter made more than one selection for President.
            - Blank/Undervoted ballots - one pile for any ballot where the voter made no selection for President.
            - Write-In - one pile for any ballot containing a write-in vote for President. (The board does *NOT* need to determine whether the write-in is for a qualified candidate: the Vote Review Panel does that.)
            - Duplicated ballots - one pile for ballots marked as duplicated.
            - Undetermined - one pile for any ballot where the audit board cannot agree on the voter's intent.
        - Candidate Ballot Tallies – Count the ballots in each stack by having one member of the audit board verbally count the ballot while handing it to the other member for verification. Count the ballots in groups of 10, stacking the groups at right angles to each other, so you can easily count the complete groups when you are done. (For instance, if you have seven groups of 10 ballots each plus an extra 3 ballots, the total tally would be 73.) Record the total tally for each candidate on the Audit Board Batch Sheet.
        - Write-In, Duplicated, and Undetermined Ballots - count the ballots in the write-in duplicated, and undetermined ballot piles and record on the Audit Board Batch Sheet. Each type should go in a designated folder or envelope by batch.
    - Write-in, Duplicated, and Undetermined ballot folders must be set aside for delivery to the Vote Review Panel.
    - Return the other ballots to the original container and seal the container.
    - Sign the Audit Board Batch Sheet.
    - Raise your check mark sign for the check-in/out station to come retrieve your container, batch sheet, and any ballots for the Vote Review Panel.

Audit Board Batch Sheet

County _____

Batch Name _____

Batch Type: ☐ Absentee ☐ Advance ☐ Election Day ☐ Provisional ☐ Other

Was the container sealed when received by the audit board? ☐ Yes

Candidates	Enter Audit Totals
Donald J. Trump	
Joseph R. Biden	
Jo Jorgenson	
Overvote	
Blank/Undervote	

Ballots sent to the Vote Review Panel (if any)

Write-in	
Duplicated	
Undetermined	

When work is completed, return all ballots (except Vote Review Panel ballots) to the ballot container and seal container.

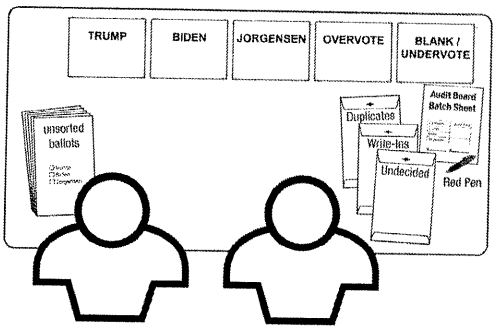
Was the container resealed by the audit board? ☐ Yes

X_____ X_____
(Audit Board Member) (Audit Board Member)

Check In/Out Station
☐ Recorded batch return on Ballot Container Inventory Sheet
☐ Delivered Vote Review Panel ballots (if any)
☐ Entered tallies into Arlo
_____ Initials of check in/out station member

Table Set up

Audit Board Table Top Organization



No Photography is allowed in the observation area.

Check-in/out Process

- Two election workers are required to observe the check in and check out process of ballots to ensure there is a secure chain of custody and inventory of ballots is kept proper.
  - One person is to be kept with the ballot containers
  - One person delivers the containers to and from the audit boards ("runner")
- There should be at least one "runner" for every 5 audit boards
- When a new container arrives, the election works must record:

- batch name
- audit board number

- Upon completion, the election worker must:
  - Verify proper completion of the *Audit Board Batch Sheet*
  - Ensure contain is resealed
  - Return the container and batch sheet to the check-in/out station
  - Note the return of the container of the Ballot Container Inventory Sheet
  - Deliver any necessary ballots/envelopes to the Vote Review Panel
    - Duplicates, write-ins, and undermined
  - Enter candidate totals for the batch in Arlo, mark as "entered"

Closing of Audit Room:

- **All eligible monitors are able to observe the closing and conclusion of the audit.**

Monitor Observes Issue…What to Do?

1. Respectfully raise issue with precinct clerk for resolution.
2. Do NOT speak to or interact with election workers.
3. Do NOT take pictures or videos.
4. If unresolved, leave polling room and call GOP GA Legal Hotline with your name, county, and location.

Be on the lookout for:

1. Lapses in procedure
2. Food or beverage on audit tables (it should be under the table)
3. Any ballots not being delivered from the runners in the regular course

Statewide Observer and VRP member Hotline: 470-410-8762

Incident Report Form (attached) and at: https://gagop.org/auditreport/

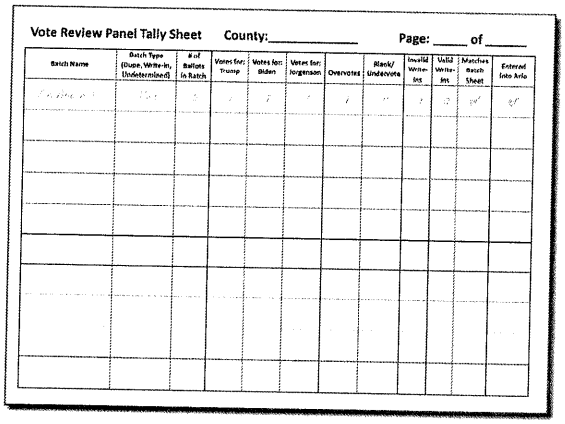
The Vote Review Panel

Vote Review Panel (VRP) Member:

- Each political party must have 1 member per VRP
- You must object when you cannot agree
    - If there is a disagreement between the two VRP members, the Superintendent or their designee breaks the tie.
- Manually log each ballot that should be adjudicated
- Must wear badges that identify them by name.
- May not speak to or otherwise interact with election workers.
- Are not allowed to wear campaign buttons, shirts, hats or other campaign items.
- **Must pose questions regarding procedures to the clerk/election worker for resolution.**

Three types of Ballots:

- Duplicated Ballots
    - Retrieve the original ballot and compare the duplicated ballot to ensure proper duplication. Using the original ballot, record the vote tally for the duplicated ballots using the Vote Review Panel Tally Sheet.
- Undetermined Ballots
    - Review the undetermined ballots where the audit board could not agree on the voter's intent to make a determination. Record the vote tally for the undetermined ballots using the Vote Review Panel Tally Sheet.
- Write-In Ballots
    - Review the write-in ballots to determine if a voter has voted for a qualified or invalid write-in candidate. Record the number of votes for each qualified write-in candidate on the Qualified Write-In Candidate Tally Sheet.



Vote Review Panel Tally Sheet County:_____ Page: ____ of _____

Batch Name	Batch Type (Dupe, Write-In, Undetermined)	# of Ballots in Batch	Votes for: Trump	Votes for: Biden	Votes for: Jorgensen	Overvotes	Blank/ Undervote	Invalid Write-Ins	Valid Write-Ins	Matches Result Sheet	Entered Into Arlo

Common Adjudication Scenarios

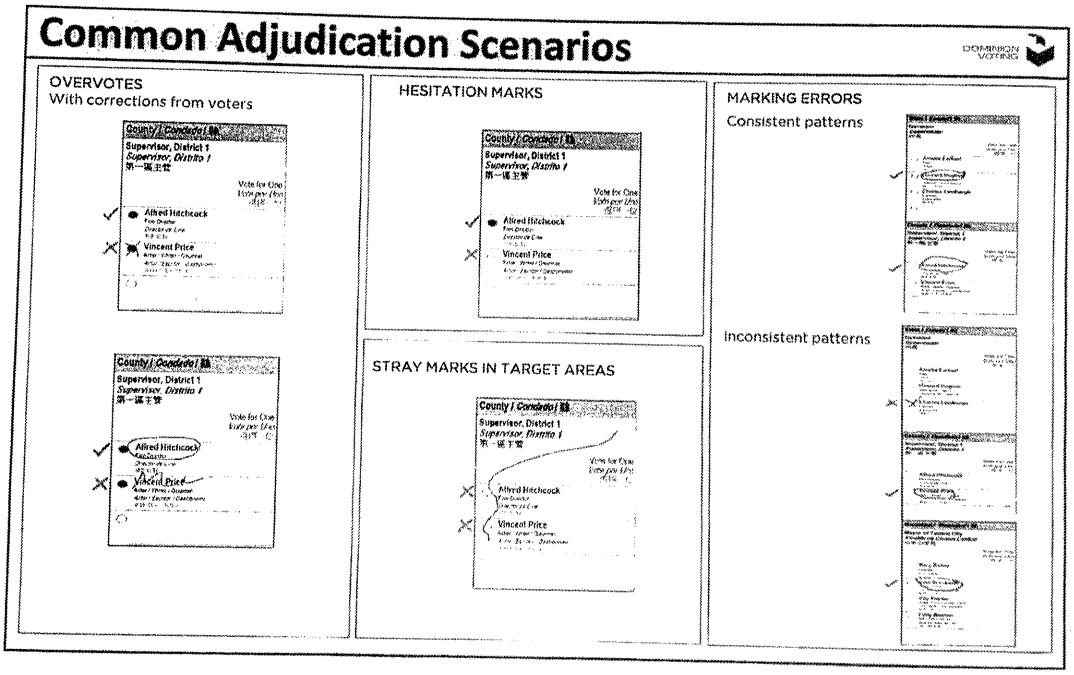


Exhibit C

GAGOP

November 15, 2020

Monitor Designee – Risk Limiting Audit

To Whom it May Concern:

This letter serves as proper notice, pursuant to O.C.G.A. § 21-2-408, § O.C.G.A. 21-2-483, State Election Board Rule 183-1- 13-.06, and/or State Election Board Rule 183-1-14-0.9-.15. The listed designees are to serve as a Monitor for the whole duration of the Risk Limiting Audit in Henry County:

- William McElligott
- Oleg Otten
- Kevin Peterford
- Nicholas Zeher
- Ibrahim Reyes-Gandara
- Juan Carlos Elso
- Carlos Silva
- Mayra Romera

David J. Shafer
Chairman

Michael Welsh
Secretary

Exh. 15

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

L. LIN WOOD, JR.,	)	
	)	
Plaintiff,	)	**CIVIL ACTION FILE NO.**
	)	**1:20-cv-04651-SDG**
v.	)	
	)	
BRAD RAFFENSPERGER, in his official capacity as Secretary of State of the State of Georgia, REBECCA N. SULLIVAN, in her official capacity as Vice Chair of the Georgia State Election Board, DAVID J. WORLEY, in his official capacity as a Member of the Georgia State Election Board, MATTHEW MASHBURN, in his official capacity as a Member of the Georgia State Election Board, and ANH LE, in her official capacity as a Member of the Georgia State Election Board,	)	
	)	
Defendants.	)	
	)	

AFFIDAVIT OF SUSAN VOYLES IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER

I, Susan Voyles, declare under penalty of perjury that the following is true and correct:

1. I am over the age of 18 years and competent to testify herein. I have personal knowledge of the matters stated herein.

2. I am a poll manager at Precinct SS02 A and B (Sandy Springs). The Fulton County Board of Elections ("BOE") sent an email soliciting poll managers and assistant poll managers for the purpose of participating in the "hand count" audit of votes cast in the November 3, 2020 presidential election. I accepted the assignment.

3. My direct supervisor, Marie Wright, asked me if I could confirm that I could show up to participate as an auditor in the recount from Saturday, November 14 until Wednesday, November 18, 2020. I was told that it was a requirement of the accepting the assignment to be available from 7:00 a.m. until 5:00 p.m on each of those five days. I was to be paid $200 per day.

4. The BOE also solicited Fulton County employees generally, such as workers from the public libraries. Most had no election experience (other than perhaps voting themselves).

5. On Saturday at 7:00 a.m., I showed up to the Georgia World Congress Center at 285 Andrew Young International Blvd. in downtown Atlanta. We had to watch a very short training video (probably less than 5 minutes) -- there was no audio, but there were captions. I watched it three times to ensure I had captured all the information, but there were some things that were not

covered, like what an auditor should do if he or she saw matters of concern. I did not see any helpful written materials on that issue.

6. We were required to sign an oath saying that we would conduct an audit impartially and fairly to the best of our ability, and were told that if we did anything wrong we would have to go before the State Board of Elections.

7. The BOE did not appear to have standardized operating procedures for the conduct of the audit. Everything was in total disarray at the counting location. The organizers did not have sufficient tables for all the committed volunteers. (When I arrived at 7:00 a.m., 134 tables were set up and I was assigned to table 136; ultimately, I believe 170 tables were set up.)

8. Counting began shortly after 7:00 a.m., as best as I could tell, but we were held to the side. After 90 minutes of counting had passed, we were assigned a table from additional tables that had been brought into the counting area.

9. Signs taped to the table indicated a place for ballots for Trump, Biden, and Jorgenson and to make a separate pile for "Blanks" (no vote for President) or overvotes (multiple votes for President). One person was to pick up the ballot and state the vote out loud, and the other was to confirm that selection and place the ballot in the appropriate location.

10. After counting, we were instructed to pick up each individual "pile" and count the ballots in each pile and place them in alternating stacks of 10 each. After counting the final tally, we were instructed to compare the number with the original number from the opening tally sheet. (The tally sheet provided a road map to the number that was needed to reconcile with the original reported results.)

11. We began counting around 9:00 a.m. We were given a tally sheet to record our findings, and manila envelopes for write-in candidates and disputed ballots. Again, we were not given any information or standards on how to interpret spoiled ballots or other discrepancies.

12. We noticed that the supervisors seemed selective as to how to allocate the assignments. For our first assignment, we were given a cardboard box that contained only absentee ballots. It was taped shut with packing tape with the seal of the Secretary of State. But the seal was blank, signed by no one, and no information had been supplied. There were no markings indicating the provenance of the box. The box was marked as Box No. 5 – Absentee – Batch Numbers 28-36.

13. Inside the box were stacks of ballots of approximately 100 ballots each. Each stack contained an original tally sheet that said the location where the

ballots were picked up. I am assuming these ballots came from the pervasive ballot boxes that had been placed throughout Fulton County.

14. Most of the ballots had already been handled; they had been written on by people, and the edges were worn. They showed obvious use. However, one batch stood out. It was pristine. There was a difference in the texture of the paper – it was if they were intended for absentee use but had not been used for that purposes. There was a difference in the feel.

15. These different ballots included a slight depressed pre-fold so they could be easily folded and unfolded for use in the scanning machines. There were no markings on the ballots to show where they had come from, or where they had been processed. These stood out.

16. In my 20 years' of experience of handling ballots, I observed that the markings for the candidates on these ballots were unusually uniform, perhaps even with a ballot-marking device. By my estimate in observing these ballots, approximately 98% constituted votes for Joseph Biden. I only observed two of these ballots as votes for President Donald J. Trump.

17. We left at approximately 4:45 on Saturday. There will still much to be done. We were told to come back on Sunday. It was estimated at that time that the

ballot recount would not be completed until Monday evening at the earliest – that's how many ballots were left.

18. On our way out, we spoke to a GWCC officer and thanked him for being there and his service. We asked him if he would be leaving shortly, and he said he was not scheduled to leave until 11:00 p.m. At that point, other officers would come and guard the room from 11:00 p.m. to 7:00 a.m.

19. On Sunday morning we arrived at approximately 6:45 a.m. Initially, the fact that there were so few auditors in the room indicated that others were just late. However, by 7:15 a.m., we realized that because so few additional auditors had arrived, there would not be a lot of auditors present for the Sunday count.

20. Interestingly, we were told to go back to our original table. Even though the room was sparsely occupied, we were surrounded with two auditors immediately in front of us and two auditors immediately behind us. We began to notice a greater disparity in the distribution of workloads. Although the auditing tables surrounding us arrived later, they were assigned large boxes of ballots before we were given. When our box arrived – after a 45 minute wait – I opened the ballot box to find only 60 ballots from the Quality Living Center in South Atlanta, a men's housing facility for recovering

addicts. The other auditing tables received boxes with over 3,000 ballots each.

21. After we completed our first ballot box, we raised our "check card" for more ballots. After waiting for an extended period, we were told our assistance was no longer needed and thanked for our work. We were told to go home.

22. We offered to help on some larger piles that were still evident, and the officials present were adamant that they did not need any help. I sat at the table for a while longer and noticed how other auditors were treated. We were explicitly told we could not have drinks or food of any kind on the table -- that was understandable. The people behind us and in front of us however had open water bottles, breakfast burritos supplied by the BOE, and snacks on their table.

23. Also, those tables were not counting as a team, with a pass-off from one to the other. Each auditor was counting individually. The purpose of the pass-off was to make sure that each auditor agreed that the call for each ballot was accurate.

24. This recount process was consistent with the lack of preparation, contingency plans, and proper procedures that I experienced in this unusual election. For example, in the setup for Election Day, we typically receive

the machines – the ballot marking devices – on the Friday before the election, with a chain of custody letter to be signed on Sunday, indicating that we had received the machines and the counts on the machines when received, and that the machines have been sealed. In this case, we were asked to sign the chain of custody letter on Sunday, even though the machines were not delivered until 2:00 a.m. in the morning on Election Day. The Milton precinct received its machines at 1:00 a.m. in the morning on Election Day. This is unacceptable and voting machines should not be out of custody immediately prior to an Election Day. It is possible that these ballot marking devices could have been used for other purposes during that period.

25. When I was asked to sign the chain of custody letter, I only signed the letter with the added language to state that I was accepting chain of custody for equipment, BMDs, and pole pads that had not been delivered.

26. My precinct should have received the poll pads on Sunday and should have been able to store them inside the ballot marking devices. We could not do that, since we did not receive the ballot marking devices in a timely manner.

27. When we did receive the machines, they were not sealed or locked, the serial numbers were not what were reflected on the related documentation, and the

green bar coded tags that are supposed to cover the door covering the memory card was broken. The supervisor told us to use the machines in that condition. As a poll manager of over 20 years, I knew this was not the standard operating procedure for the BMDs and therefore I did not put them into service.

28. I believe my honesty in this affidavit will lead to my arrangement as a poll worker in Fulton County being compromised. However, the BOE operations were sloppy and led me, in the case of at least one box I reviewed, to believe that additional absentee ballots had been added in a fraudulent manner. This is my personal experience.

[SIGNATURE AND OATH ON NEXT PAGE]

I declare under penalty of perjury that the foregoing statements are true and correct

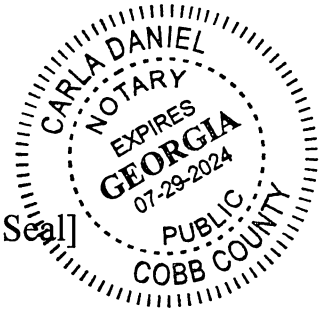
Susan Voyles

STATE OF GEORGIA

COUNTY OF FULTON

Susan Voyles, appeared before me, a Notary Public in and for the above jurisdiction, this 17th day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal]



Notary Public

My Commission Expires 07-29-2024

Exh. 16

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

L. LIN WOOD, JR.,	)	
	)	
Plaintiff,	)	**CIVIL ACTION FILE NO. 1:20-cv-04651-SDG**
	)	
v.	)	
	)	
BRAD RAFFENSPERGER, in his official capacity as Secretary of State of the State of Georgia, REBECCA N. SULLIVAN, in her official capacity as Vice Chair of the Georgia State Election Board, DAVID J. WORLEY, in his official capacity as a Member of the Georgia State Election Board, MATTHEW MASHBURN, in his official capacity as a Member of the Georgia State Election Board, and ANH LE, in her official capacity as a Member of the Georgia State Election Board,	)	
	)	
Defendants.	)	

AFFIDAVIT OF IBRAHIM REYES, ESQUIRE IN SUPPORT OF PLAINTIFF'S MOTION FOR TEMPORARY RESTRAINING ORDER

I, Ibrahim Reyes, declare under penalty of perjury that the following is true and correct:

1. My name is Ibrahim Reyes. I am an attorney licensed to practice law in the State of Florida since 2002, my office address is 236 Valencia Avenue, Coral Gables, FL 33134, and my email address is ireyes@reyeslawyers.com.

2. I am over the age of 18 years and competent to testify herein. I have personal knowledge of the matters stated herein.

3. I volunteered to assist in the manual recount in the State of Georgia and was assigned to work as a Monitor and as a member of the Vote Review Panel.

4. On November 16, 2020, I went to Clayton County from 8:00 A.M. to 6:00 P.M.

5. I identified myself as a Monitor and Vote Review Panel associated with the Republican Party, and the person in charge of the Clayton County precinct, Erica Johnston, said that I could not be present on the floor until I received a badge with my name, that it would be printed shortly, within thirty minutes, but could stand in the observers area, away from the counting tables.

6. I did not receive my identification badge until three hours, so I was prevented from acting as a Monitor all morning.

7. However, as an observer, I observed that the precinct had twelve (12) counting tables, but only one (1) monitor from the Republican Party. I brought it up to Erica Johnston since the recount rules provided for one (1) monitor from each Party per ten (10) tables or part thereof.

8. Erica Johnston said that I was wrong, that there were only ten tables counting and explained that because there were ten tables, not twenty, only one monitor was allowed. I explained to her that there were twelve tables counting, and

that the rules did not state what she said, and read to her the rule, which I had on my phone.

9. Erica Johnston proceeded to tell me that it did not matter, that she was in charge, and that unless there were twenty tables, one monitor for twelve tables was fine because of the limited space. I explained that I did not note an exception where due to limited space, she could individually determine how many Monitors to allow, and that she had created her own rules for the manual recount, which precluded Republican Monitors from monitoring the recount. Erica Johnston said that if I continued to insist on having one more Monitor for the Republican Party, she would call the Police.

10. We were inside the Clayton County Police Department. I pointed her where a Police officer was and asked her to call her over. I explained to the female police officer that the Clayton County precinct was not counting ballots following the rules for counting ballots, and I was requesting Erica Johnston to follow the rules. The police officer told me that she could not do anything about it.

11. A Clayton County journalist named Robin Kemp of @RKempNews, overheard the exchange, as a member of the media went in and photographed the twelve (12) counting tables, confirmed to me that she had seen twelve counting tables, and published it in Twitter.

12.Soon thereafter, before noon, we were notified that the location would close, and the recount would be moved to Jackson Elementary to allow for more space and more monitors.

13. The recount resumed at Jackson Elementary on or about 1:30 P.M., after boxes of ballots were brought in a Clayton County white van with tag GV57976 and taken into Jackson Elementary.

14.I had my identification badge by then, so I went in and noticed that one Republican Monitor was allowed, yet now there were twenty six (26) tables, and informed Erica Johnston that, again, if there were twenty six tables for recounting, three (3) monitors from each Party were to be permitted.

15.Erica Johnston told me that she was in charge, and that I should stop interfering with the process. I informed Erica Johnston that she was interfering with the process, since she was not following the recount rules, knowingly.

16.At that point in time, a young man named Trevin McKoy, associated with the Georgia Republican Party, told Erica Johnston that the Republicans were entitled to three, not one, Monitor, since there were twenty-six tables. Erica Johnston called over a Police officer, Officer Johnson, and Erica Johnston asked Officer Johnson to remove Mr. McKoy from the building.

17.I intervened and explained to Officer Johnson that Erica Johnston was not following the rules, and Officer Johnson replied that Erica Johnston was in charge, and that we were not in a Courtroom.

18.I walked outside with Trevin McKoy, and so did the journalist, Robin Kemp, who proceeded to publish the violation of rules on her Twitter account.

19.Within five minutes of the Twitter having been published, Erica Johnston approached me and told me that the Republicans could have two additional Monitors, and two additional Monitors went on the floor.

20.She also offered me to participate in the Voting Review Panel, which I did until 6:00 P.M.

21.As a Voting Review Panel member, I sat next to two counting tables, and monitored whether counters were following the rules.

22.For example, the procedure required that the two counters sitting next to each other would recite the name of the candidate for whom the vote was cast, one first, the second after, to confirm agreement, and then place the 'ballot' on the appropriate stack, Trump, Biden, etc.

23.The counters on the two tables next to my table were not doing that, and I served as a next to them for over three hours. One would give a 'ballot' to the next, and the next would place it on top of one of the stacks, without confirmation from counter 2 to counter 1.

24.I witnessed that Erica Johnston did not follow the rules until I complained, and journalist Robin Kemp published the violations on her Twitter account.

25.I also witnessed that Officer Johnson, of the Clayton County Police Department, removed Trevin McKoy from the Jackson Elementary precinct only because Erica Johnston told him to remove him, even though Trevin McKoy had not done or said anything improper.

26.I also observed that the precinct had Democratic Party monitors, Republican Party monitors, and Carter Center monitors, and only Republican Monitors were being mistreated by Erica Johnston and by Officer Johnson.

[SIGNATURE AND OATH ON NEXT PAGE]

I declare under penalty of perjury that the foregoing statements are true and correct

Ibrahim Reyes

STATE OF GEORGIA

COUNTY OF FULTON

Ibrahim Reyes appeared before me, a Notary Public in and for the above jurisdiction, this 17th day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal]

CARLA DANIEL NOTARY PUBLIC COBB COUNTY GEORGIA EXPIRES 07-29-2024

Notary Public

My Commission Expires 07-29-2024

Exh. 17

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

L. LIN WOOD, JR.,	
Plaintiff,	**CIVIL ACTION FILE NO. 1:20-cv-04651-SDG**
v.	
BRAD RAFFENSPERGER, in his official capacity as Secretary of State of the State of Georgia, REBECCA N. SULLIVAN, in her official capacity as Vice Chair of the Georgia State Election Board, DAVID J. WORLEY, in his official capacity as a Member of the Georgia State Election Board, MATTHEW MASHBURN, in his official capacity as a Member of the Georgia State Election Board, and ANH LE, in her official capacity as a Member of the Georgia State Election Board,	
Defendants.	

AFFIDAVIT OF CONSETTA S. JOHNSON IN SUPPORT OF PLAINTIFF'SMOTION FOR TEMPORARY RESTRAINING ORDER

I, Consetta S. Johnson, declare under penalty of perjury that the following is true and correct:

1. I am over the age of 18 years and competent to testify herein. I have personal knowledge of the matters stated herein.

2. I was a volunteer audit monitor at the Jim R. Miller Park for the recount process on November 16, 2020.
3. As a floor monitor, I could see by the markings that the ballots being audited were absentee ballots.
4. I witnessed two poll workers placing already separated paper machine receipt ballots with barcodes in the Trump tray, placing them in to the Biden tray.
5. I also witnessed the same two poll workers putting the already separated paper receipt ballots in the "No Vote" and "Jorgensen" tray, and removing them and putting them inside the Biden tray.
6. They then took out all of the ballots out of the Biden tray and stacked them on the table, writing on the count ballot sheet. A copy of the video reflecting this is attached as **Exhibit A**.
7. Although I observed a supervisor provide guidance and instructions, the process was not uniform, and most poll workers were working in their own format and style.
8. I also observed the poll workers not calling out verbally the names of each ballot. They simply passed each ballot to each other in silence.
9. I believe the Board of Elections operations were sloppy, unorganized, and suspicious. As an observer I could not observe presidential vote preference

because the font size of the machine paper printed ballots were difficult to read from my distance. This is my personal experience.

I declare under penalty of perjury that the foregoing statements are true and correct

Consetta S. Johnson

STATE OF GEORGIA

COUNTY OF COBB

Consetta S. Johnson appeared before me, a Notary Public in and for the above jurisdiction, this 17th day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal] CARLA DANIEL NOTARY PUBLIC COBB COUNTY GEORGIA EXPIRES 07-29-2024

Notary Public

My Commission Expires 07-29-2024

Exh. 18

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

L. LIN WOOD, JR.,	)	
	)	
Plaintiff,	)	**CIVIL ACTION FILE NO. 1:20-cv-04651-SDG**
	)	
v.	)	
	)	
BRAD RAFFENSPERGER, in his official capacity as Secretary of State of the State of Georgia, REBECCA N. SULLIVAN, in her official capacity as Vice Chair of the Georgia State Election Board, DAVID J. WORLEY, in his official capacity as a Member of the Georgia State Election Board, MATTHEW MASHBURN, in his official capacity as a Member of the Georgia State Election Board, and ANH LE, in her official capacity as a Member of the Georgia State Election Board,	)	
	)	
Defendants.	)	

AFFIDAVIT OF CARLOS E. SILVA IN SUPPORT OF PLAINTIFF'S MOTION FOR TEMPORARY RESTRAINING ORDER

I, Carlos E. Silva, declare under penalty of perjury that the following is true and correct:

1. I am over the age of 18 years and competent to testify herein. I have personal knowledge of the matters stated herein.

2. I am and have been a Florida trial lawyer for over 26 years.

3. I am a registered Democrat.

4. Me and several people from my firm were very interested in the election process in this country and wanted to be observers in the Georgia recount process to see if we had a valid, secure and non-biased voting system.

5. On Sunday, November 15, 2020 I arrived to Dekalb County Poll Precinct located at 2998 Turner Hill Road, Stonecrest, GA 30038.

6. I was allowed to be an observer and walked over to a table of two women counting votes.

7. I watched them pull out a pile of what I observed to be absentee ballots and noticed two very distinct characteristics that these ballots had. One, I noticed that they all had a perfect black bubble and were all Biden select. I was able to observe the perfect bubble for a few minutes before they made me move away from the table. At no time did I speak to the poll workers or obstruct them in any way. I heard them go through the stack and call out Biden's name over 500 times in a row.

8. On the following day, on November 16, 2020, I presented myself to Cobb County Poll Precinct located at 2245 Callaway Road SW, Marietta, GA. At first, I was standing next to the panel reviewers in Room B, where I observed absentee ballots being reviewed with the same perfect bubble that I had seen the night before at Dekalb County. All of these ballots had the same two characteristics: they were all for Biden and had the same perfect black bubble.

9. After being there for over an hour, I walked over to Room C where the absentee ballots were being manually recounted (audited). While in this room, I did not hear a verbal callout as to each ballot as I had heard the day before in Dekalb County. It was instead, done in a silent manner between both poll workers.

10. I was able to visualize the perfect bubble with the name Biden on it for approximately ten minutes before a female middle aged (blonde hair with glasses) supervisor in a ski jacket asked me to move ten feet away and refused to give me her name. Later on, one of the people traveling with me from my office, heard her say to keep an eye on the guy with a blue blazer and a pocket square, he is not allowed to come on the floor and observe past the yellow tape. I was the only one wearing a blue blazer with a pocket square.

11. I also observed a dispute at one of the tables between an observer and a male supervisor (perhaps in his mid-thirties) who stated that a box had been certified incorrectly because the recount number was different than the original number. The observer was also upset because nothing was done about it.

12. I also saw absentee ballots for Trump inserted into Biden's stack and were counted as Biden votes. This occurred a few times.

13. I also observed throughout my three days in Atlanta, not once did anyone verify signatures on these ballots. In fact, there was no authentication process in place and no envelopes were observed or allowed to be observed.

14. I saw hostility towards Republican observers but never towards Democrat observers. Both were identified by badges.

15. Lastly, after my frustrating experience, I decided to try to speak one of the poll workers after hours. I identified myself as an observer that wanted to know more about the process and any pressure he may have been under. He advised that they, as poll workers, have been prohibited to speak to observers at any time, and that the pressure they have been under by their supervisors has been great. Not only in the speed of counting, but in reference to

irregularities that he was not at liberty to discuss with me. I asked him if he could find some time to speak with me after he was done counting and relieved of his duties and he said he was advised to never speak to anyone about the process.

16. Based on my observations, I have reached the conclusion that in the counties I have observed, there is widespread fraud favoring candidate Biden only. There were thousands of ballots that just had the perfect bubble marked for Biden and no other markings in the rest of the ballot.

[SIGNATURE AND OATH ON NEXT PAGE]

I declare under penalty of perjury that the foregoing statements are true and correct.

Carlos E. Silva

STATE OF GEORGIA

COUNTY OF FULTON

Carlos E. Silva appeared before me, a Notary Public in and for the above jurisdiction, this 17th day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal]

CARLA DANIEL NOTARY PUBLIC COBB COUNTY GEORGIA EXPIRES 07-29-2024

Notary Public

My Commission Expires 07-29-2024

Exh. 19

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

L. LIN WOOD, JR.,	)	
	)	
Plaintiff,	)	**CIVIL ACTION FILE NO. 1:20-cv-04651-SDG**
	)	
v.	)	
	)	
BRAD RAFFENSPERGER, in his official capacity as Secretary of State of the State of Georgia, REBECCA N. SULLIVAN, in her official capacity as Vice Chair of the Georgia State Election Board, DAVID J. WORLEY, in his official capacity as a Member of the Georgia State Election Board, MATTHEW MASHBURN, in his official capacity as a Member of the Georgia State Election Board, and ANH LE, in her official capacity as a Member of the Georgia State Election Board,	)	
	)	
Defendants.	)	
_____	)	

AFFIDAVIT OF ANDREA O'NEAL IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER

I, Andrea O'Neal, declare under penalty of perjury that the following is true and correct:

1. I am over the age of 18 years and competent to testify herein. I have personal knowledge of the matters stated herein.

2. I volunteered to be a monitor for the Donald J. Trump Presidential Campaign, Inc. (the "Trump Campaign") in connection with what was identified to me as the "hand count" of votes cast in the November 3, 2020 presidential election. I was assigned to monitor the hand count on November 14, 2020 at the Lithonia Voting Facility in Lithonia, Georgia.
3. I voted early on October 12 at the precinct at Lynwood Park in Brookhaven. Because of irregularities at the polling location, I called the voter fraud line to ask why persons were discussing my ballot and reviewing it to decide where to place it. When I called the state fraud line, I was redirected to a worker in the office of the Secretary of State.
4. I asked to speak with a person in charge of fraud. The worker said he didn't really have anyone to forward me to. He gave me the number to someone named Leigh at the State level, and then the DeKalb voting office. I left a message with Leigh, I never received a call back. I called DeKalb, again it was given an administrative worker, then a supervisor, but there was no dedicated resource against the fraud.
5. I became alarmed at what I was seeing and volunteered to watch in the hand recount. At the Lithonia location, I was originally scheduled to watch from 1:00 p.m. until 5:00 p.m. on November 16th. I initially saw counters who were

separated and not reading to each other, as was required by the instructions for the hand recount. A supervisor came over and told the workers to work together.

6. Around 3:00 p.m., I observed an auditor incorrectly collecting batches into odd numbers. I told a supervisor and she made the auditors at that table start over again.

7. We were too far away from the ballots to see who they were being voted for. If the auditors were not recording correctly, we would have no one of knowing whether the call out of any name was what was reflected on the ballot.

8. Around 4:00 pm. I saw another auditor incorrectly sort Biden votes without verification from another auditor. That auditor was collecting ballots that he said were voted for Biden and sorting them into 10 ballot stacks. But he did not show the ballots to anyone else. This violated the whole purpose of verifying the ballots as counted.

9. I was the only poll monitor near the table at the time. I went and told one of the supervisors who immediately went over to check and then went and spoke with "Gavin," the Republican supervisor/attorney. By the time I went back over the original Republican monitor was there with a different poll supervisor ("Twyla") and a group of 4 Democratic monitors had formed around the table.

10. The Republican poll monitor was recalling what she had seen, but confronted by the Audit Board members, who were refuting her comments vigorously. I stated that I had observed the exact same thing. The 4 Democratic monitors that were standing around the table accused us of ganging up on the table to watch them. They also stated that they were there watching and I was lying. None of them were there for the 5 minutes that I observed the improper actions, but they may have observed proper counting at a prior time, and I allowed this.

11. Nonetheless, Twyla stated that we were ganging up with "malice". I stated to Twyla that the table was not following proper procedure. She argued that a counted stack is a counted stack, no matter how they did it.

12. Two other Republican monitors firmly stated that all tables needed to be following proper procedure and this table was in clear violation. The workers were relieved from their shift and Twyla stated that the box they had been working on would get recounted.

13. I told Twyla that I had noticed each table counting its own way – some independently, some not, some out loud, some without discussion – and each table was sorting stacks by different counts. There was no uniform system. Written instructions state that stacks should be sorted in batches of 10. I

observed tables counting by 25, and one table that was counting stacks by 100s.

14. All of this may have been a problem with the limited training that the workers received, or the limitations of the mission – it is not clear what the "hand recount" is supposed to generate.

15. These problems may have been avoided with more training. I told Twyla that they needed to make sure everyone had proper training to follow the protocols as written. It was not easy to monitor where in the process of sorting and counting each table was at due to lack of consistency.

[SIGNATURE AND OATH ON NEXT PAGE]

I declare under penalty of perjury that the foregoing statements are true and correct

Andrea O'Neal

STATE OF GEORGIA

COUNTY OF FULTON

Andrea O'Neal, appeared before me, a Notary Public in and for the above jurisdiction, this 17th day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal]

CARLA DANIEL NOTARY PUBLIC COBB COUNTY GEORGIA EXPIRES 07-29-2024

Notary Public

My Commission Expires 07-29-2024

Exh. 20

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

L. LIN WOOD, JR.,	)	
	)	
Plaintiff,	)	**CIVIL ACTION FILE NO. 1:20-cv-04651-SDG**
	)	
v.	)	
	)	
BRAD RAFFENSPERGER, in his official capacity as Secretary of State of the State of Georgia, REBECCA N. SULLIVAN, in her official capacity as Vice Chair of the Georgia State Election Board, DAVID J. WORLEY, in his official capacity as a Member of the Georgia State Election Board, MATTHEW MASHBURN, in his official capacity as a Member of the Georgia State Election Board, and ANH LE, in her official capacity as a Member of the Georgia State Election Board,	)	
	)	
Defendants.	)	
_____	)	

AFFIDAVIT OF DEBRA J. FISHER IN SUPPORT OF PLAINTIFF'S MOTION FOR TEMPORARY RESTRAINING ORDER

I, Debra J. Fisher, declare under penalty of perjury that the following is true and correct:

1. I am over the age of 18 years and competent to testify herein. I have personal knowledge of the matters stated herein.
2. On November 16, 2020 I witnessed the various issues on military and overseas ballots.
3. All military and overseas ballots I reviewed were very clean. No bubbles were colored outside of the line. Not one ballot used an "x" or check mark. The ballots I observed were marked in black ink and were for Biden. Not one ballot had a selection crossed out to change the vote selection.
4. I noticed that almost all of the ballots I reviewed were for Biden. Many batches went 100% for Biden.
5. I also observed that the watermark on at least 3 ballots were solid gray instead of transparent, leading me to believe the ballot was counterfeit. I challenged this and the Elections Director said it was a legitimate ballot and was due to the use of different printers.
6. Many ballots had markings for Biden only, and no markings on the rest of the ballot. This did not occur on any of the Trump ballots I observed.
7. Ballots were rejected because people chose 2 or more candidates. I found it odd that none of this happened with the military ballots.

8. The military ballots did not have one specific precinct code on them. Instead, they had multiple precincts printed on it (a "combo"). I challenged this as when this is done, you do not know what precinct the voter is registered in.

9. Based on my observations above and the fact that signatures on the ballots were not being verified, I believe the military ballots are highly suspicious of fraud. I declare under penalty of perjury that the foregoing statements are true and correct.

[SIGNATURE AND OATH ON NEXT PAGE]

I declare under penalty of perjury that the foregoing statements are true and correct

Debra J. Fisher

STATE OF GEORGIA

COUNTY OF COBB

Debra J. Fisher appeared before me, a Notary Public in and for the above jurisdiction, this 17th day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal]

CARLA DANIEL NOTARY PUBLIC COBB COUNTY GEORGIA EXPIRES 07-29-2024

Notary Public

My Commission Expires 07-29-2024

Exh. 22

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

L. LIN WOOD, JR.,	)	
	)	
Plaintiff,	)	**CIVIL ACTION FILE NO.**
	)	**1:20-cv-04651-SDG**
v.	)	
	)	
BRAD RAFFENSPERGER, in his official capacity as Secretary of State of the State of Georgia, REBECCA N. SULLIVAN, in her official capacity as Vice Chair of the Georgia State Election Board, DAVID J. WORLEY, in his official capacity as a Member of the Georgia State Election Board, MATTHEW MASHBURN, in his official capacity as a Member of the Georgia State Election Board, and ANH LE, in her official capacity as a Member of the Georgia State Election Board,	)	
	)	
Defendants.	)	
_____	)	

AFFIDAVIT OF KEVIN P. PETERFORD IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER

I, Kevin P. Peterford, declare under penalty of perjury that the following is true and correct:

1. I am over the age of 18 years and competent to testify herein. I have personal knowledge of the matters stated herein.

2. I am an attorney licensed to practice law in the state of Florida.

3. On Sunday November 15, 2020 Alyssa Specht appointed me to serve as a Monitor for the duration of the Risk Limiting Audit in DeKalb County (the "DeKalb Appointment Letter"). A true and accurate copy of the appointment letter is attached to this Affidavit as **Exhibit "A."**

4. On Sunday at around 12:30 p.m., I showed up to 2994 Turner Hill Road, Stonecrest, Georgia 30038 to begin observing as a Monitor. Prior to my arrival, I was sent a handout titled "Audit/Recount Monitor and Vote Review Panel Handout" which outlined the rules in place as well as provided guidelines for observation. A true and accurate copy of the Audit/Recount Monitor and Vote Review Panel Handout is attached to this Affidavit as **Exhibit "B."**

5. After signing in and providing the DeKalb appointment letter to the check-in desk, I was permitted to roam throughout the facility to conduct observations.

6. The first thing I noticed was signs taped to each table (the "Review Table" or "Review Tables") indicated a place for ballots for Trump, Biden, and Jorgenson and other signs for "Blanks" (no vote for President) or overvotes (multiple votes for President). At each Review Table were two people

manually reviewing each ballot (the "Recounter"). The first Recounter would pick up the ballot and orally announce which candidate the ballot was cast for. The first Recounter would then pass the ballot to the second Recounter who would again orally announce which candidate the ballot was cast for. The ballot was subsequently placed in the pile designated for that candidate as discussed above.

7. Due to the COVID restrictions, we were instructed to stay a minimum of six feet away from any Recounter sitting at one of the Review Tables.

8. The ballots would be brought to the Review Table in a cardboard box by another worker. I was never able to get close enough to read any writing on any of the cardboard boxes. After the carboard box was opened, stacks of ballots were removed and placed on the Review Table. There were notes on each stack but again, I was never able to get close enough to read what was written.

9. Once the stack of ballots was on the Review Table, the process of reviewing the ballot began in the manner outlined above in paragraph 6.

10. At no time did I witness any Recounter or any individual participating in the recount verifying signatures.

11. If one of the Recounters encountered a ballot that was questionable, he or she raised a piece of paper with a "?" and what seemed to be a supervisor would come to that Review Table. A short conversation was had and the supervisor would provide the Recounters with instructions. Again, I was never able to get close enough to hear what was said.

12. When a Review Table completed reviewing a cardboard box full of ballots, one of the Recounters would write some information (I assume it was the number of ballots for each candidate the box contained) on a piece of paper and place it on top of the cardboard box. Then one of the Recounters would hold a piece of paper with a "√" (check mark) on it in the air and someone would come pick up the box full of ballots.

13. There was no person verifying the number of votes that the Recounter would write on the paper.

14. At one point, I witnessed a fellow monitor chase after a ballot box that was supposedly finished being counted.

15. Once this monitor was towards the back of the room, with this ballot box, the supervisor in charge chased after him, directing him to go back to the main part of the room and to leave the ballot box.

16. It was later learned that this ballot box needed to be recounted because a 0 (zero) had been incorrectly added to the Biden count, making it approximately 10,000 plus votes for Biden, when it should only have been in the thousands.

17. I spoke to other Observers present that day and they had witnessed the same thing. Other Observes also informed me that fellow Observers were removed for getting too close to the Review Tables. That when they would get close enough to see what was actually filled in on the ballot, one of the Recounters would begin making a big scene and call over a supervisor. The supervisor would then remove the Monitor permanently.

18. While in DeKalb County, I saw a lot of hostility towards Republicans and none towards Democrats.

19. Further, I noticed a Democrat Monitor speaking to a Recounter, which was strictly against the rules of conduct during the recount.

20. On the evening of November 15, 2020, Alyssa Specht appointed me as an Monitor in Henry County for the whole duration of the Risk Limiting Audit ("Henry County Appointment Letter"). A true and accurate copy of the Henry County Appointment Letter is attached to this Affidavit as **Exhibit "C."**

21. I arrived at 562 Industrial Boulevard, McDonough, Georgia 30253 at around 9:30 a.m.

22. When I entered the building, I was halted by a woman at the door who immediately informed me that I was not needed and that all the position had been filled. At this time, the woman neither asked who I was nor why I was present. I asked this woman to speak to the person in charge.

23. Within a few seconds, I was greeted by Ameika Pitts ("Ms. Pitts"), Henry Country's Elections Director. Ms. Pitts informed me that my assistance was not needed, and I was free to go. Again, this was told to me prior to her asked why I was there and who I was.

24. I then pulled the Henry County Appointment Letter up on my phone and presented it to her. Ms. Pitts immediately told me that I was not able to have my phone inside the building even though the recount was allegedly being "live streamed." After a brief conversation, I send Ms. Pitts a copy of the letter and was permitted to enter the building, but only in the public observation area.

25. Fortunately, after speaking to several Republican Party volunteers, Ms. Pitts was provided my name from the Henry County Republican Chairwoman and I was permitted to enter into the observation area.

26. Once inside the observation area, I saw that it was set up very similar to DeKalb County with the Review Tables having the same designations and each Review table having two Recounters as described in paragraph 6 above.

27. As I began walking around, I noticed several differences between DeKalb County and Henry County. In Henry County, the ballots were brought to each Review Table in a red, plastic box with security ties used to hold the box closed. Those ties were cut, and the ballots were then removed and placed on top of the Review Table in stacks that were wrapped in a rubber bands and had a pink sticky note on each stack which displayed the number of ballots each stack contained. The Recounter would then remove the rubber band and sticky note and begin counting the same was described in paragraph 6 above.

28. At around 12:05 p.m. I was observing table "G" when the two recount workers sorted a pile of ballots that had a note which said "93" as the number of ballots. When the two workers finished sorting and counting the ballots, there were only 92. The director of the election committee, Ms. Pitts came to the two workers and simply signed a separate sheet of paper saying that there were only 92 ballots. Ms. Pitts never recounted to make sure. This

happened several times and Ms. Pitts informed us that she has been directed to just sign off on the number of ballots the recount worker said was there.

29. While in Henry County, I personally witnessed ballots cast for Donald Trump being placed in the pile for Joseph Biden. I witnessed this happen at table "A."

30. I interviewed a few Observers that same day who informed me that on multiple occasions, Recounters at tables "A," "B," "G," and "O" were seen placing ballots cast for Donald Trump placed in the pile for Joseph Biden. When this was brought to Ms. Pitts attention, it was met with extreme hostility. At no time did I witness any ballot cast for Joseph Biden be placed in the pile for Donald Trump.

31. Based on my personal observations, I believe that additional absentee ballots were cast for Donald Trump but counted for Joseph Biden. I further believe that there was widespread fraud favoring Joseph Biden. This is my personal experience.

[SIGNATURE AND OATH ON NEXT PAGE]

I declare under penalty of perjury that the foregoing statements are true and correct

Kevin Peterford

STATE OF FLORIDA

COUNTY OF PALM BEACH

Kevin Peterford, appeared before me, a Notary Public in and for the above jurisdiction, this 17th day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal]

Notary Public

My Commission Expires_____

NICHOLAS JOHN ZEHER
MY COMMISSION # GG 976387
EXPIRES: April 6, 2024
Bonded Thru Notary Public Underwriters

Exhibit A

GAGOP

November 15, 2020

Monitor Designee – Risk Limiting Audit

To Whom it May Concern:

This letter serves as proper notice, pursuant to O.C.G.A. § 21-2-408, § O.C.G.A. 21-2-483, State Election Board Rule 183-1- 13-.06, and/or State Election Board Rule 183-1-14-0.9-.15. The listed designees are to serve as a Monitor for the whole duration of the Risk Limiting Audit in DeKalb County:

- William McElligott
- Oleg Otten
- Kevin Peterford
- Nicholas Zeher
- Scott Strauss
- Michael Sasso

David J. Shafer
Chairman

Michael Welsh
Secretary

Exhibit B

Audit/Recount
Monitor and Vote Review Panel Handout

Audit Observer Handout

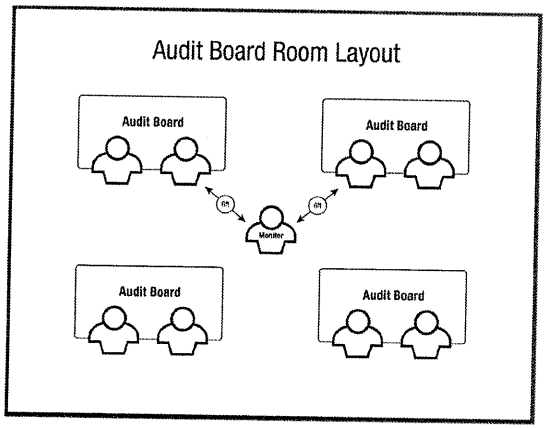
Arrival:

- Arrive 30 minutes prior to the start of your shift.
- The public is to watch the opening procedures before the audit begins and after the audit ends for the day.
- Be respectful and professional, not adversarial.

Audit Observers/Designated Monitors:

- Each political party may have one designated monitor per 10 Audit Teams or a minimum of two designated monitors per room.
- Designated monitors may roam the audit room and observe the audit process
- Observe the Check-in and Check-out process of the ballots
- Must wear badges that identify them by name.
- Are allowed to observe but may not obstruct orderly conduct of election.
- May not speak to or otherwise interact with election workers.
- Are not allowed to wear campaign buttons, shirts, hats or other campaign items.
- Do not touch any ballot or ballot container
- Observe and ensure the room is properly set-up, the Audit Teams are completing their tasks, and the Table is set up properly (see below).
- **Must pose questions regarding procedures to the clerk/election worker for resolution.**

Room Set up



Audit Teams Responsibilities

When reviewing a ballot and determining the voter's mark, audit boards must consider "if the elector has marked his or her ballot in such a manner that he or she has indicated clearly and without question the candidate for whom he or she desires to cast his or her vote." O.C.G.A. 21-2-438(c).

As a batch is delivered from the check-in/out station:

- Record the County Name, Batch Name, and Batch Type (Absentee, Advanced Voting, Provisional, Election Day), and verify the container was sealed on the Audit Board Batch Sheet.

- Unseal the container.
- Recount the Ballots using the "Sort and Stack" method:
    - Pull the ballots out of the container and stack neatly on the table.
        - If the container contains more than 1000 ballots, ballots should be removed from the container and sorted in manageable stacks (using an Audit Board Batch Sheet for each stack), leaving the rest of the ballots in the container until the previous stack is done.
        - For each ballot: audit board member (ABM) #1 picks up a single ballot from the stack and reads the vote for the Presidential contest aloud, then hands the ballot to ABM #2. ABM #2 verifies the vote that is on the ballot is indeed what ABM #1 read, then places the ballot in the "stack" that corresponds to the vote. ABM #1 should watch to make sure the ballot is placed in the right stack. There will be 8 stacks as follows:
            - Trump
            - Biden
            - Jorgensen
            - Overvoted ballots - one pile for any ballot where the voter made more than one selection for President.
            - Blank/Undervoted ballots - one pile for any ballot where the voter made no selection for President.
            - Write-In - one pile for any ballot containing a write-in vote for President. (The board does *NOT* need to determine whether the write-in is for a qualified candidate: the Vote Review Panel does that.)
            - Duplicated ballots - one pile for ballots marked as duplicated.
            - Undetermined - one pile for any ballot where the audit board cannot agree on the voter's intent.
        - Candidate Ballot Tallies – Count the ballots in each stack by having one member of the audit board verbally count the ballot while handing it to the other member for verification. Count the ballots in groups of 10, stacking the groups at right angles to each other, so you can easily count the complete groups when you are done. (For instance, if you have seven groups of 10 ballots each plus an extra 3 ballots, the total tally would be 73.) Record the total tally for each candidate on the Audit Board Batch Sheet.
        - Write-In, Duplicated, and Undetermined Ballots - count the ballots in the write-in duplicated, and undetermined ballot piles and record on the Audit Board Batch Sheet. Each type should go in a designated folder or envelope by batch.
    - Write-in, Duplicated, and Undetermined ballot folders must be set aside for delivery to the Vote Review Panel.
    - Return the other ballots to the original container and seal the container.
    - Sign the Audit Board Batch Sheet.
    - Raise your check mark sign for the check-in/out station to come retrieve your container, batch sheet, and any ballots for the Vote Review Panel.

Audit Board Batch Sheet

County _____

Batch Name _____

Batch Type: ☐ Absentee ☐ Advance ☐ Election Day ☐ Provisional ☐ Other

Was the container sealed when received by the audit board? ☐ Yes

Candidates	Enter Audit Totals
Donald J. Trump	
Joseph R. Biden	
Jo Jorgenson	
Overvote	
Blank/Undervote	

Ballots sent to the Vote Review Panel (if any)

Write-in	
Duplicated	
Undetermined	

When work is completed, return all ballots (except Vote Review Panel ballots) to the ballot container and seal container.

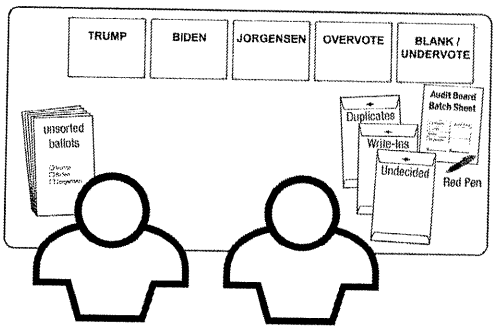
Was the container resealed by the audit board? ☐ Yes

X_____ X_____
(Audit Board Member) (Audit Board Member)

Check In/Out Station
☐ Recorded batch return on Ballot Container Inventory Sheet
☐ Delivered Vote Review Panel ballots (if any)
☐ Entered tallies into Arlo
_____ Initials of check in/out station member

Table Set up

Audit Board Table Top Organization



No Photography is allowed in the observation area.

Check-in/out Process

- Two election workers are required to observe the check in and check out process of ballots to ensure there is a secure chain of custody and inventory of ballots is kept proper.
  - One person is to be kept with the ballot containers
  - One person delivers the containers to and from the audit boards ("runner")
- There should be at least one "runner" for every 5 audit boards
- When a new container arrives, the election works must record:

- batch name
- audit board number

- Upon completion, the election worker must:
  - Verify proper completion of the *Audit Board Batch Sheet*
  - Ensure contain is resealed
  - Return the container and batch sheet to the check-in/out station
  - Note the return of the container of the Ballot Container Inventory Sheet
  - Deliver any necessary ballots/envelopes to the Vote Review Panel
    - Duplicates, write-ins, and undermined
  - Enter candidate totals for the batch in Arlo, mark as "entered"

Closing of Audit Room:

- **All eligible monitors are able to observe the closing and conclusion of the audit.**

Monitor Observes Issue...What to Do?

1. Respectfully raise issue with precinct clerk for resolution.
2. Do NOT speak to or interact with election workers.
3. Do NOT take pictures or videos.
4. If unresolved, leave polling room and call GOP GA Legal Hotline with your name, county, and location.

Be on the lookout for:

1. Lapses in procedure
2. Food or beverage on audit tables (it should be under the table)
3. Any ballots not being delivered from the runners in the regular course

Statewide Observer and VRP member Hotline: 470-410-8762

Incident Report Form (attached) and at: https://gagop.org/auditreport/

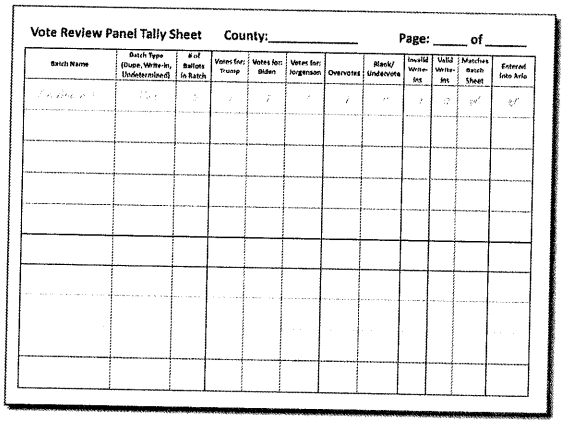
The Vote Review Panel

Vote Review Panel (VRP) Member:

- Each political party must have 1 member per VRP
- You must object when you cannot agree
  - If there is a disagreement between the two VRP members, the Superintendent or their designee breaks the tie.
- Manually log each ballot that should be adjudicated
- Must wear badges that identify them by name.
- May not speak to or otherwise interact with election workers.
- Are not allowed to wear campaign buttons, shirts, hats or other campaign items.
- **Must pose questions regarding procedures to the clerk/election worker for resolution.**

Three types of Ballots:

- Duplicated Ballots
  - Retrieve the original ballot and compare the duplicated ballot to ensure proper duplication. Using the original ballot, record the vote tally for the duplicated ballots using the Vote Review Panel Tally Sheet.
- Undetermined Ballots
  - Review the undetermined ballots where the audit board could not agree on the voter's intent to make a determination. Record the vote tally for the undetermined ballots using the Vote Review Panel Tally Sheet.
- Write-In Ballots
  - Review the write-in ballots to determine if a voter has voted for a qualified or invalid write-in candidate. Record the number of votes for each qualified write-in candidate on the Qualified Write-In Candidate Tally Sheet.



Vote Review Panel Tally Sheet County:_____ Page: ____ of _____

Batch Name	Batch Type (Dupe, Write-In, Undetermined)	# of Ballots in Batch	Votes for: Trump	Votes for: Biden	Votes for: Jorgensen	Overvotes	Blank/ Undervote	Invalid Write-Ins	Valid Write-Ins	Matches Result Sheet	Entered Into Arlo

Common Adjudication Scenarios

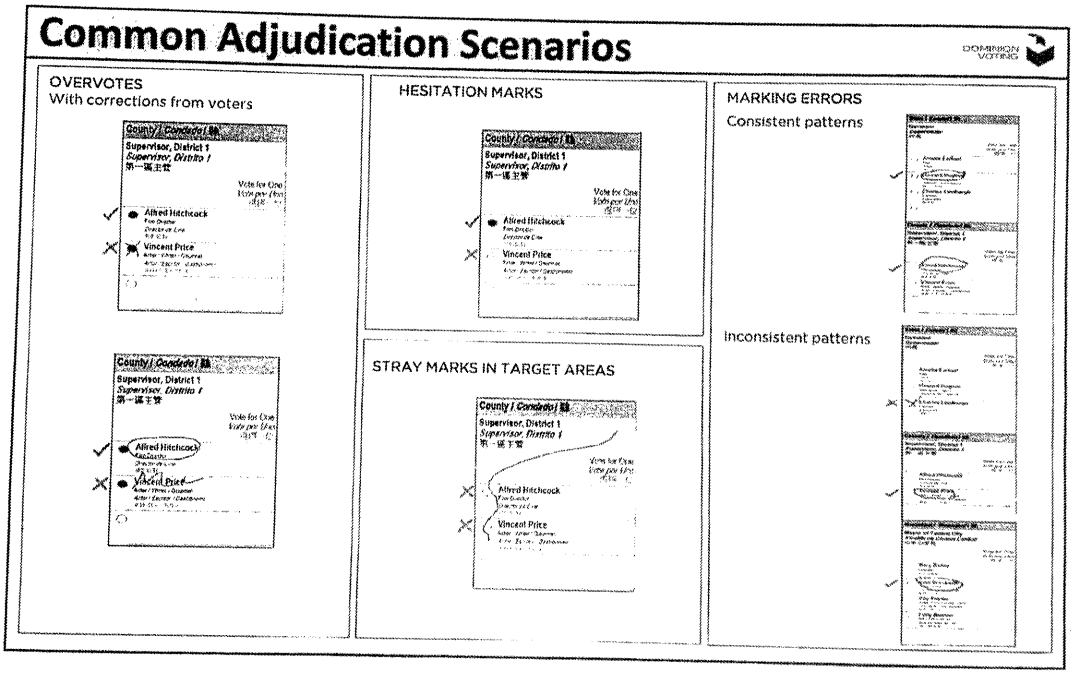


Exhibit C

GAGOP

November 15, 2020

Monitor Designee – Risk Limiting Audit

To Whom it May Concern:

This letter serves as proper notice, pursuant to O.C.G.A. § 21-2-408, § O.C.G.A. 21-2-483, State Election Board Rule 183-1- 13-.06, and/or State Election Board Rule 183-1-14-0.9-.15. The listed designees are to serve as a Monitor for the whole duration of the Risk Limiting Audit in Henry County:

- William McElligott
- Oleg Otten
- Kevin Peterford
- Nicholas Zeher
- Ibrahim Reyes-Gandara
- Juan Carlos Elso
- Carlos Silva
- Mayra Romera

David J. Shafer
Chairman

Michael Welsh
Secretary

Exh. 23

The State of Texas

Elections Division
P.O. Box 12060
Austin, Texas 78711-2060
www.sos.texas.gov

Phone: 512-463-5650
Fax: 512-475-2811
Dial 7-1-1 For Relay Services
(800) 252-VOTE (8683)

Ruth R. Hughs
Secretary of State

REPORT OF REVIEW OF DOMINION VOTING SYSTEMS DEMOCRACY SUITE 5.5-A

PRELIMINARY STATEMENT

On October 2-3, 2019, Dominion Voting Systems ("Dominion" or the "Vendor") presented the Democracy Suite 5.5-A system for examination and certification. The examination was conducted in Austin, Texas. Pursuant to Sections 122.035(a) and (b) of the Texas Election Code, the Secretary of State appointed the following examiners:

1. Mr. Tom Watson, an expert in electronic data communication systems;
2. Mr. Brian Mechler, an expert in electronic data communication systems;
3. Mr. Brandon Hurley, an expert in election law and procedure; and
4. Mr. Charles Pinney, an expert in election law and procedure.

Pursuant to Section 122.035(a), the Texas Attorney General appointed the following examiners:

1. Dr. Jim Sneeringer, an expert in electronic data communication systems; and
2. Mr. Ryan Vassar, an employee of the Texas Attorney General.

On October 2, 2019, Mr. Pinney, Mr. Mechler, and Dr. Sneeringer witnessed the installation of the Democracy Suite 5.5-A software and firmware that the Office of the Texas Secretary of State (the "Office") received directly from the Independent Testing Authority. The next day, Mr. Pinney examined the accessibility components of the ImageCast X Ballot Marking Device.

On October 3, 2019, the Vendor demonstrated the Democracy Suite 5.5-A system and answered questions presented by the examiners. Test ballots were then processed on each voting device. The results were accumulated and later verified for accuracy by staff of the Secretary of State.

Examiner reports regarding the Democracy Suite 5.5-A system are attached hereto and incorporated herein by this reference.

On December 27, 2019, pursuant to Section 122.0371 of the Texas Election Code, the Office held a public hearing for interested persons to express views for or against the certification of the Democracy Suite 5.5-A system.

BRIEF DESCRIPTION OF DEMOCRACY SUITE 5.5-A

The Democracy Suite 5.5-A system is an updated version of the Democracy Suite 5.5 system, which was denied certification by the Office on June 20, 2019. The Democracy Suite 5.5-A system includes certain software and hardware updates to the Suite 5.5 version.

Democracy Suite 5.5-A has been evaluated at an accredited independent voting system laboratory for conformance to the 2005 Voluntary Voting System Guidelines (VVSG). Democracy Suite 5.5-A was certified by the Election Assistance Commission (EAC) on January 30, 2019.

The components of Democracy Suite 5.5-A are as follows:

Component	Version	Description
EMS – Election Management System	5.5.12.1	Election Management System
ADJ – Adjudication	5.5.8.1	
ICC – ImageCast Central	5.5.3.0002	Central scanner
ICX – ImageCast X BMD	5.5.10.30	Ballot marking device
ICP – ImageCast Precinct	5.5.3-0002	Precinct scanner

FINDINGS

The following are the findings, based on written evidence submitted by the Vendor in support of its application for certification, oral evidence presented at the examination, and the findings of the voting system examiners as set out in their written reports.

The examiner reports identified multiple hardware and software issues that preclude the Office of the Texas Secretary of State from determining that the Democracy Suite 5.5-A system satisfies each of the voting-system requirements set forth in the Texas Election Code. Specifically, the examiner reports raise concerns about whether the Democracy Suite 5.5-A system is suitable for its intended purpose; operates efficiently and accurately; and is safe from fraudulent or unauthorized manipulation. Therefore, the Democracy Suite 5.5-A system and corresponding hardware devices do not meet the standards for certification prescribed by Section 122.001 of the Texas Election Code.

CONCLUSION

Accordingly, based upon the foregoing, I hereby deny certification of Dominion Voting Systems' Democracy Suite 5.5-A system for use in Texas elections.

Signed under my hand and seal of office, this 24th day of January 2020.

JOSE A. ESPARZA
DEPUTY SECRETARY OF STATE

Exh. 24

Congress of the United States

Washington, DC 20515

October 6, 2006

Henry M. Paulson, Jr.
Secretary
Department of the Treasury
1500 Pennsylvania Ave., N.W.
Washington, D.C. 20220

Dear Mr. Secretary:

I am writing to follow up on my letter of May 4, 2006, to Secretary Snow, seeking review by the Committee on Foreign Investment in the United States of the acquisition of Sequoia Voting Systems by Smartmatic, a foreign-owned company. I believe this transaction raises exactly the sort of foreign ownership issues that CFIUS is best positioned to examine for national security concerns. As discussed below, publicly reported information about Smartmatic's ownership and about the vulnerability of electronic voting machines to tampering raises serious concerns. I strongly urge CFIUS to independently verify the information provided to American officials and the public by Sequoia/Smartmatic, and to take all appropriate measures to safeguard our national security.

It is undisputed that Smartmatic is foreign-owned and it has acquired Sequoia, one of the three major voting machine companies doing business in the U.S. According to a Sequoia press release in May 2006 (copy attached) Sequoia voting machines were used to record over 125 million votes during the 2004 Presidential election in the United States. As we confront another election, Americans deserve to know that the Administration has made sure that any foreign ownership of voting machines poses no national security threat.

Although many press reports have tried, it appears that it is not possible to discern the true owners of Smartmatic from information available to the public. Smartmatic now acknowledges that Antonio Mugica, a Venezuelan businessman, has a controlling interest in Smartmatic, but the company has not revealed who all the other Smartmatic owners are. According to the press, Smartmatic's owners are hidden through a web of off-shore private entities. (See attached articles.)

The opaque nature of Smartmatic's ownership is particularly troubling since Smartmatic has been associated by the press with the Venezuelan government led by Hugo Chavez, which is openly hostile to the United States. According to press reports, Smartmatic shared a founder, officers, directors and a principal place of business with Bizta, a company in which, according to Smartmatic, the Venezuelan government previously held a 28% stake. Mugica is also a director of Bizta.

PRINTED ON RECYCLED PAPER

According to Smartmatic press releases, (copies attached) Smartmatic and Bizta were part of the consortium that received the government contract to provide the voting machines for the 2004 referendum election to recall Chavez as Venezuela's president, and have since been awarded other contracts by the Venezuelan government.

Smartmatic's possible connection to the Venezuelan government poses a potential national security concern in the context of its acquisition of Sequoia because electronic voting machines are susceptible to tampering and insiders are in the best position to engage in such tampering. The 2005 Government Accountability Office Report on electronic voting, GAO-05-956, and other private sector studies consistently support this conclusion. Thus, the reports that Sequoia brought Venezuelan nationals to the United States to work on the Chicago 2006 primary election raises questions about whether these individuals are subject to direction from a foreign interest that might pose a threat to the integrity of the election. Similarly, the use of Smartmatic software and machines developed in Venezuela, such as the HAAT software that was at issue in Chicago, raises questions as to whether this software is susceptible to manipulation by its unknown creators. Reportedly, Smartmatic may soon be introducing into the United States the type of electronic voting machines that were used (with Bizta software) in the controversial 2004 Venezuelan recall election, under the label AVC Edge II Plus.

In reviewing the Smartmatic acquisition of Sequoia, it is important that CFIUS understand the products and services that are of Venezuelan origin and evaluate Smartmatic's ownership to determine who could have influence and control over these and other Sequoia products and services that are in use or intended for use in U.S. elections. In light of Smartmatic's failure fully to answer these questions to date, this issue demands the most thorough independent investigation by CFIUS.

Thank you for your consideration of this letter.

Sincerely,

Carolyn B. Maloney

Carolyn B. Maloney
Member of Congress

Attachments

Exh. 25

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

L. LIN WOOD, JR.,	
Plaintiff,	**CIVIL ACTION FILE NO. 1:20-cv-04651-SDG**
v.	
BRAD RAFFENSPERGER, in his official capacity as Secretary of State of the State of Georgia, REBECCA N. SULLIVAN, in her official capacity as Vice Chair of the Georgia State Election Board, DAVID J. WORLEY, in his official capacity as a Member of the Georgia State Election Board, MATTHEW MASHBURN, in his official capacity as a Member of the Georgia State Election Board, and ANH LE, in her official capacity as a Member of the Georgia State Election Board,	
Defendants.	

AFFIDAVIT OF JUAN CARLOS COBUCCI IN SUPPORT OF PLAINTIFF'S MOTION FOR TEMPORARY RESTRAINING ORDER

I, JUAN CARLOS COBUCCI, declare under the penalty of perjury that the following is true and correct:

1. My name is Juan Carlos Cobucci. I am over the age of 18 and competent to testify. I have personal knowledge of the matters stated herein.

2. I was born in Carracas Venezuela in 1967 and migrated to the United States in 2015 on a business visa.
3. In 1979 my family started a company called Panavideo Installaciones y Servicios C.A. The company sold safety systems for banks. The systems included CCTV cameras, electronic access points, and other machinery to assist with verifying authenticity of checks and cash. The company focused on providing security for not only employees, customers, but also currency.
4. In 1974, my cousin, Antonio Jose Mugica, was born. He is the son of my uncle Antonio Mugica. Antonio Jose was always a strong student, he graduated with honors from Emil Friedman High School and continued his education in Germany and Spain. Antonio Jose also studied at Simon Bolivar School in Venezuela where he focused on electronic engineering, graduating first in his class.
5. In 1994, my father retired from Panavideo Installaciones y Servicios C.A. citing irreconcilable differences with other family members.
6. In 1997, Antonio Jose graduated from Simon Bolivar University and began to work with his father, Antonio Mugica at Panavideo Installaciones y Servicios C.A.
7. In 2000, after the State of Florida elections, Antonio Jose incorporated Smartmatic in Delaware. Antonio told me that he maintained a majority control over the company but allowed his father, Antonio Mugica, along with other cousins to have an ownership interest. In addition to the family members, Antonio Jose allowed several Venezuelan citizens to obtain an ownership interest.

8. In approximately 2000, Antonio Jose was introduced to Jorge Rodriguez through Alejandro Caribas. Alejandro Caribas was the president of FOGADE, Fondo de Proteccion Social de los Depositos Bancarios. Antonio Jose explained to me that this fund was created to steal and centralize all Venezuelan financial interests.

9. Shortly after the introduction, Antonio Jose and Jorge Rodriguez traveled to Italy in order to test and observe additional voting software.

10. In approximately 2002, Smartmatic contracted with the Venezuelan government to provide the software necessary to conduct the elections that took place in August of 2004, the "Venezuelan Recall Referendum." Prior to the elections, I saw Antonio Jose in person and on television numerous times promoting the veracity, transparency, and security of the Smartmatic voting software. Antonio Jose became known as el "Nino Barbudo." He told me that he grew his beard to appear older and fit the profile in order to gain credibility with the Venezuelan government and other future clients of Smartmatic.

11. In January of 2004, I went to Clinica el Avila in Caracas, Venezuela for the birth of my niece. While at the hospital I saw my uncle, Antonio Mugica, and we engaged into a lengthy conversation about my cousin, Antonio Jose's, recent success with Smartmatic. During the conversation, my uncle's demeanor changed. He was clearly saddened and distraught when discussing Antonio Jose and Smartmatic. When I pressed him on the issue, my uncle confided in me that Antonio Jose had converted to communism as a result of his connections with the Venezuelan government. In addition, my uncle told me with a heavy heart that Antonio Jose manipulated the Smartmatic system utilized during the election to ensure that President Chavez was successful during the 2004 elections.

12. He further explained that Antonio Jose was able to manipulate the approximately 31,000 voting machines utilized throughout Venezuela by limiting the number of votes against President Chavez to either 232 or 236. All of the remain votes were counted in favor of retain President Chavez. During what should have been a time of joy, my uncle, Antonio Mugica, was exhibiting signs of remorse, sadness, and shame over the actions taken by his son, Antonio Jose.

13. Following this encounter with my uncle, Antonio Mugica, I confronted Antonio Jose on the issues regarding the 2004 elections and he confirmed that he had converted to communism and as a result worked with the Venezuelan government to manipulate the Smartmatic systems in order to prevail during the 2004 elections in Venezuela and make sure that the communist party never lost another election in Venezuela. Antonio Jose told me that his ability to manipulate the Smartmatic systems would allow him to dominate the world.

14. Antonio Jose admitted to me that he was paid tens of millions of dollars by the Venezuelan government from 2003 through 2015 for the use of his Smartmatic systems. He also explained that his goal was to have Smartmatic implemented in every country, including the United States.

15. Over the next ten years, Antonio Jose traveled the world over selling his Smartmatic systems to various countries. He told me that the Venezuelan government provided him with numerous contacts and he ultimately sold Smartmatic systems to the Philippines, Nigeria, and other African countries.

16. In approximately 2006, Antonio Jose came to the United States and established a headquarters for Smartmatic in Boca Raton, Florida. In addition, he told me that he purchased Sequoia Systems in the United States and his goal was to one his voting systems to determine the outcome of the United States elections.

17. In 2013, my cousin Antonio Jose recruited and employed our cousin, Javier Fernandez. Javier assisted Antonio Jose with preparing the elections, allocating voting machines, and overall logistics.

18. Shortly after learning that Antonio Jose had hired Javier, I confronted Javier with the information Antonio Jose had provided about his ability to manipulate the Smartmatic systems and Javier confirmed that Antonio Jose was able to control the outcome of the voting.

19. A copy of my passport is attached hereto as Exhibit A.

I declare under penalty of perjury that the foregoing statements are true and correct

JUAN CARLOS COBUCCI

STATE OF FLORIDA
COUNTY OF MIAMI-DADE

JUAN CARLOS COBUCCI, appeared before me, a Notary Public in and for the above jurisdiction, this 24 day of November 2020, and after being duly sworn, made this Declaration, under oath.

PL DL C120-423-67-194-0

VERONICA RAMOS
Notary Public - State of Florida
Commission # GG 943602
My Comm. Expires Apr 14, 2024
Bonded through National Notary Assn.

Notary Public

My Commission Expires 4/14/2024

Exh. 26

Congress of the United States

Washington, DC 20510

December 6, 2019

Sami Mnaymneh
Founder and Co-Chief Executive Officer
H.I.G. Capital, LLC
[redacted]

Tony Tamer
Founder and Co-Chief Executive Officer
H.I.G. Capital, LLC
[redacted]

Dear Messrs. Mnaymneh and Tamer:

We are writing to request information regarding H.I.G. Capital's (H.I.G.) investment in Hart InterCivic Inc. (Hart InterCivic) one of three election technology vendors responsible for developing, manufacturing and maintaining the vast majority of voting machines and software in the United States, and to request information about your firm's structure and finances as it relates to this company.

Some private equity funds operate under a model where they purchase controlling interests in companies and implement drastic cost-cutting measures at the expense of consumers, workers, communities, and taxpayers. Recent examples include Toys "R" Us and Shopko.[1] For that reason, we have concerns about the spread and effect of private equity investment in many sectors of the economy, including the election technology industry—an integral part of our nation's democratic process. We are particularly concerned that secretive and "trouble-plagued companies,"[2] owned by private equity firms and responsible for manufacturing and maintaining voting machines and other election administration equipment, "have long skimped on security in favor of convenience," leaving voting systems across the country "prone to security problems."[3] In light of these concerns, we request that you provide information about your firm, the portfolio

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[1] Atlantic, "The Demise of Toys 'R' Us Is a Warning," Bryce Covert, July/August 2018 issue, https://www.theatlantic.com/magazine/archive/2018/07/toys-r-us-bankruptcy-private-equity/561758/; Axios, "How workers suffered from Shopko's bankruptcy while Sun Capital made money," Dan Primack, "How workers suffered from Shopko's bankruptcy while Sun Capital made money," June 11, 2019, https://www.axios.com/shopko-bankruptcy-sun-capital-547b97ba-901c-4201-92cc-6d3168357fa3.html.

[2] ProPublica, "The Market for Voting Machines Is Broken. This Company Has Thrived in It.," Jessica Huseman, October 28, 2019, https://www.propublica.org/article/the-market-for-voting-machines-is-broken-this-company-has-thrived-in-it.

[3] Associated Press News, "US Election Integrity Depends on Security-Challenged Firms," Frank Bajak, October 28, 2019, https://apnews.com/f6876669cb6b4e4c9850844f8e015b4c.

companies in which it has invested, the performance of those investments, and the ownership and financial structure of your funds.

Over the last two decades, the election technology industry has become highly concentrated, with a handful of consolidated vendors controlling the vast majority of the market. In the early 2000s, almost twenty vendors competed in the election technology market.[4] Today, three large vendors—Election Systems & Software, Dominion Voting Systems, and Hart InterCivic—collectively provide voting machines and software that facilitate voting for over 90% of all eligible voters in the United States.[5] Private equity firms reportedly own or control each of these vendors, with very limited "information available in the public domain about their operations and financial performance."[6] While experts estimate that the total revenue for election technology vendors is about $300 million, there is no publicly available information on how much those vendors dedicate to research and development, maintenance of voting systems, or profits and executive compensation.[7]

Concentration in the election technology market and the fact that vendors are often "more seasoned in voting machine and technical services contract negotiations" than local election officials, give these companies incredible power in their negotiations with local and state governments. As a result, jurisdictions are often caught in expensive agreements in which the same vendor both sells or leases, and repairs and maintains voting systems–leaving local officials dependent on the vendor, and the vendor with little incentive to substantially overhaul and improve its products.[8] In fact, the Election Assistance Commission (EAC), the primary federal body responsible for developing voluntary guidance on voting technology standards, advises state and local officials to consider "the cost to purchase or lease, operate, and maintain a voting system over its life span … [and to] know how the vendor(s) plan to be profitable" when signing contracts, because vendors typically make their profits by ensuring "that they will be around to maintain it after the sale." The EAC has warned election officials that "[i]f you do not manage the vendors, they will manage you."[9]

Election security experts have noted for years that our nation's election systems and infrastructure are under serious threat. In January 2017, the U.S. Department of Homeland Security designated the United States' election infrastructure as "critical infrastructure" in order to prioritize the protection of our elections and to more effectively assist state and local election

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[4] Bloomberg, "Private Equity Controls the Gatekeepers of American Democracy," Anders Melin and Reade Pickert, November 3, 2018, https://www.bloomberg.com/news/articles/2018-11-03/private-equity-controls-the-gatekeepers-of-american-democracy.

[5] Penn Wharton Public Policy Initiative, "The Business of Voting," July 2018, https://publicpolicy.wharton.upenn.edu/live/files/270-the-business-of-voting.

[6] Id.

[7] Id.

[8] Brennan Center for Justice, "America's Voting Machines at Risk," Lawrence Norden and Christopher Famighetti, 2015, https://www.brennancenter.org/sites/default/files/publications/Americas_Voting_Machines_At_Risk.pdf; Penn Wharton Public Policy Initiative, "The Business of Voting," July 2018, https://publicpolicy.wharton.upenn.edu/live/files/270-the-business-of-voting.

[9] U.S. Election Assistance Commission, "Ten Things to Know About Selecting a Voting System," October 14, 2017, https://www.eac.gov/documents/2017/10/14/ten-things-to-know-about-selecting-a-voting-system-cybersecurity-voting-systems-voting-technology/.

officials in addressing these risks.[10] However, voting machines are reportedly falling apart across the country, as vendors neglect to innovate and improve important voting systems, putting our elections at avoidable and increased risk.[11] In 2015, election officials in at least 31 states, representing approximately 40 million registered voters, reported that their voting machines needed to be updated, with almost every state "using some machines that are no longer manufactured."[12] Moreover, even when state and local officials work on replacing antiquated machines, many continue to "run on old software that will soon be outdated and more vulnerable to hackers."[13]

In 2018 alone "voters in South Carolina [were] reporting machines that switched their votes after they'd inputted them, scanners [were] rejecting paper ballots in Missouri, and busted machines [were] causing long lines in Indiana."[14] In addition, researchers recently uncovered previously undisclosed vulnerabilities in "nearly three dozen backend election systems in 10 states."[15] And, just this year, after the Democratic candidate's electronic tally showed he received an improbable 164 votes out of 55,000 cast in a Pennsylvania state judicial election in 2019, the county's Republican Chairwoman said, "[n]othing went right on Election Day. Everything went wrong. That's a problem."[16] These problems threaten the integrity of our elections and demonstrate the importance of election systems that are strong, durable, and not vulnerable to attack.

H.I.G. reportedly owns or has had investments in Hart InterCivic, a major election technology vendor. In order to help us understand your firm's role in this sector, we ask that you provide answers to the following questions no later than December 20, 2019.

1. Please provide the disclosure documents and information enumerated in Sections 501 and 503 of the *Stop Wall Street Looting Act*.[17]

2. Which election technology companies, including all affiliates or related entities, does H.I.G. have a stake in or own? Please provide the name of and a brief description of the services each company provides.

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[10] Department of Homeland Security, "Statement by Secretary Jeh Johnson on the Designation of Election Infrastructure as a Critical Infrastructure Subsector," January 6, 2017, https://www.dhs.gov/news/2017/01/06/statement-secretary-johnson-designation-election-infrastructure-critical.

[11] AP News, "US election integrity depends on security-challenged firms," Frank Bajak, October 29, 2018, https://apnews.com/f6876669cb6b4e4c9850844f8e015b4c; Penn Wharton Public Policy Initiative, "The Business of Voting," July 2018, https://publicpolicy.wharton.upenn.edu/live/files/270-the-business-of-voting.

[12] Brennan Center for Justice, "America's Voting Machines at Risk," Lawrence Norden and Christopher Famighetti, 2015, https://www.brennancenter.org/sites/default/files/publications/Americas_Voting_Machines_At_Risk.pdf.

[13] Associated Press, "AP Exclusive: New election systems use vulnerable software," Tami Abdollah, July 13, 2019, https://apnews.com/e5e070c31f3c497fa9e6875f426ccde1.

[14] Vice, "Here's Why All the Voting Machines Are Broken and the Lines Are Extremely Long," Jason Koebler and Matthew Gault, November 6, 2018, https://www.vice.com/en_us/article/59vzgn/heres-why-all-the-voting-machines-are-broken-and-the-lines-are-extremely-long.

[15] Vice, "Exclusive: Critical U.S. Election Systems Have Been Left Exposed Online Despite Official Denials," Kim Zetter, August 8, 2019, https://www.vice.com/en_us/article/3kxzk9/exclusive-critical-us-election-systems-have-been-left-exposed-online-despite-official-denials.

[16] New York Times, "A Pennsylvania Country's Election Day Nightmare Underscores Voting Machine Concerns," Nick Corasaniti, November 30, 2019, https://www.nytimes.com/2019/11/30/us/politics/pennsylvania-voting-machines.html.

[17] Stop Wall Street Looting Act, S.2155, https://www.congress.gov/bill/116th-congress/senate-bill/2155.

a. Which election technology companies, including all affiliates or related entities, has H.I.G. had a stake in or owned in the past twenty years? Please provide the name of and a brief description of the services each company provides or provided.

b. For each election technology company H.I.G. had a stake in or owned in the past twenty years, including all affiliates or related entities, please provide the following information for each year that the firm has had a stake in or owned this company and the five years preceding the firm's investment.
   i. The name of the company
   ii. Ownership stake
   iii. Total revenue
   iv. Net income
   v. Percentage of revenue dedicated to research and development
   vi. Total number of employees
   vii. A list of all state and local jurisdictions with which the company has a contract to provide election related products or services
   viii. Other private-equity firms that own a stake in the company

3. Has any election technology company, including all affiliates or related entities, in which H.I.G. has an ownership stake or has had an ownership stake in the last twenty years, been found to have been in noncompliance with the EAC's Voluntary Voting System Guidelines? If so, please provide a copy of each EAC noncompliance notice received by the company and a description of what steps the company took to resolve each issue.

4. Has any election technology company, including all affiliates or related entities, in which H.I.G. has an ownership stake or has had an ownership stake in the last twenty years, been found to have been in noncompliance with any state or local voting system guidelines or practices? If so, please provide a list of all such instances and a description of what steps the company took to resolve each issue.

5. Has any election technology company, including all affiliates or related entities, in which H.I.G. has an ownership stake or has had an ownership stake in the last twenty years, been found to have violated any federal or state laws or regulations? If so, please provide a complete list, including the date and description, of all such violations.

6. Has any election technology company, including all affiliates or related entities, in which H.I.G. has an ownership stake or has had an ownership stake in the last twenty years, reached a settlement with any federal or state law enforcement entity related to a potential violation of any federal or state laws or regulations? If so, please provide a complete list, including the date and description, of all such settlements.

7. Has any election technology company, including all affiliates or related entities, in which H.I.G. has an ownership stake or has had an ownership stake in the past twenty years, reached a settlement with any state or local jurisdiction related to a potential violation of or breach of contract? If so, please provide a complete list, including the date and description, of all such settlements.

Thank you for your attention to this matter.

Sincerely,

Elizabeth Warren
United States Senator

Amy Klobuchar
United States Senator

Ron Wyden
United States Senator

Mark Pocan
Member of Congress

Congress of the United States

Washington, DC 20510

December 6, 2019

Michael McCarthy
Chairman
McCarthy Group, LLC
[redacted]

Dear Mr. McCarthy:

We are writing to request information regarding McCarthy Group, LLC's (McCarthy Group) investment in Election Systems & Software (ES&S), one of three election technology vendors responsible for developing, manufacturing and maintaining the vast majority of voting machines and software in the United States, and to request information about your firm's structure and finances as it relates to this company.

Some private equity funds operate under a model where they purchase controlling interests in companies and implement drastic cost-cutting measures at the expense of consumers, workers, communities, and taxpayers. Recent examples include Toys "R" Us and Shopko.[1] For that reason, we have concerns about the spread and effect of private equity investment in many sectors of the economy, including the election technology industry—an integral part of our nation's democratic process. We are particularly concerned that secretive and "trouble-plagued companies,"[2] owned by private equity firms and responsible for manufacturing and maintaining voting machines and other election administration equipment, "have long skimped on security in favor of convenience," leaving voting systems across the country "prone to security problems."[3] In light of these concerns, we request that you provide information about your firm, the portfolio companies in which it has invested, the performance of those investments, and the ownership and financial structure of your funds.

Over the last two decades, the election technology industry has become highly concentrated, with a handful of consolidated vendors controlling the vast majority of the market. In the early

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[1] Atlantic, "The Demise of Toys 'R' Us Is a Warning," Bryce Covert, July/August 2018 issue, https://www.theatlantic.com/magazine/archive/2018/07/toys-r-us-bankruptcy-private-equity/561758/; Axios, "How workers suffered from Shopko's bankruptcy while Sun Capital made money," Dan Primack, "How workers suffered from Shopko's bankruptcy while Sun Capital made money," June 11, 2019, https://www.axios.com/shopko-bankruptcy-sun-capital-547b97ba-901c-4201-92cc-6d3168357fa3.html.

[2] ProPublica, "The Market for Voting Machines Is Broken. This Company Has Thrived in It.," Jessica Huseman, October 28, 2019, https://www.propublica.org/article/the-market-for-voting-machines-is-broken-this-company-has-thrived-in-it.

[3] Associated Press News, "US Election Integrity Depends on Security-Challenged Firms," Frank Bajak, October 28, 2019, https://apnews.com/f6876669cb6b4e4c9850844f8e015b4c.

2000s, almost twenty vendors competed in the election technology market.[4] Today, three large vendors—ES&S, Dominion Voting Systems, and Hart InterCivic—collectively provide voting machines and software that facilitate voting for over 90% of all eligible voters in the United States.[5] Private equity firms reportedly own or control each of these vendors, with very limited "information available in the public domain about their operations and financial performance."[6] While experts estimate that the total revenue for election technology vendors is about $300 million, there is no publicly available information on how much those vendors dedicate to research and development, maintenance of voting systems, or profits and executive compensation.[7]

Concentration in the election technology market and the fact that vendors are often "more seasoned in voting machine and technical services contract negotiations" than local election officials, give these companies incredible power in their negotiations with local and state governments. As a result, jurisdictions are often caught in expensive agreements in which the same vendor both sells or leases, and repairs and maintains voting systems–leaving local officials dependent on the vendor, and the vendor with little incentive to substantially overhaul and improve its products.[8] In fact, the Election Assistance Commission (EAC), the primary federal body responsible for developing voluntary guidance on voting technology standards, advises state and local officials to consider "the cost to purchase or lease, operate, and maintain a voting system over its life span … [and to] know how the vendor(s) plan to be profitable" when signing contracts, because vendors typically make their profits by ensuring "that they will be around to maintain it after the sale." The EAC has warned election officials that "[i]f you do not manage the vendors, they will manage you."[9]

Election security experts have noted for years that our nation's election systems and infrastructure are under serious threat. In January 2017, the U.S. Department of Homeland Security designated the United States' election infrastructure as "critical infrastructure" in order to prioritize the protection of our elections and to more effectively assist state and local election officials in addressing these risks.[10] However, voting machines are reportedly falling apart across the country, as vendors neglect to innovate and improve important voting systems, putting our

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[4] Bloomberg, "Private Equity Controls the Gatekeepers of American Democracy," Anders Melin and Reade Pickert, November 3, 2018, https://www.bloomberg.com/news/articles/2018-11-03/private-equity-controls-the-gatekeepers-of-american-democracy.

[5] Penn Wharton Public Policy Initiative, "The Business of Voting," July 2018, https://publicpolicy.wharton.upenn.edu/live/files/270-the-business-of-voting.

[6] Id.

[7] Id.

[8] Brennan Center for Justice, "America's Voting Machines at Risk," Lawrence Norden and Christopher Famighetti, 2015, https://www.brennancenter.org/sites/default/files/publications/Americas_Voting_Machines_At_Risk.pdf; Penn Wharton Public Policy Initiative, "The Business of Voting," July 2018, https://publicpolicy.wharton.upenn.edu/live/files/270-the-business-of-voting.

[9] U.S. Election Assistance Commission, "Ten Things to Know About Selecting a Voting System," October 14, 2017, https://www.eac.gov/documents/2017/10/14/ten-things-to-know-about-selecting-a-voting-system-cybersecurity-voting-systems-voting-technology/.

[10] Department of Homeland Security, "Statement by Secretary Jeh Johnson on the Designation of Election Infrastructure as a Critical Infrastructure Subsector," January 6, 2017, https://www.dhs.gov/news/2017/01/06/statement-secretary-johnson-designation-election-infrastructure-critical.

elections at avoidable and increased risk.[11] In 2015, election officials in at least 31 states, representing approximately 40 million registered voters, reported that their voting machines needed to be updated, with almost every state "using some machines that are no longer manufactured."[12] Moreover, even when state and local officials work on replacing antiquated machines, many continue to "run on old software that will soon be outdated and more vulnerable to hackers."[13]

In 2018 alone "voters in South Carolina [were] reporting machines that switched their votes after they'd inputted them, scanners [were] rejecting paper ballots in Missouri, and busted machines [were] causing long lines in Indiana."[14] In addition, researchers recently uncovered previously undisclosed vulnerabilities in "nearly three dozen backend election systems in 10 states."[15] And, just this year, after the Democratic candidate's electronic tally showed he received an improbable 164 votes out of 55,000 cast in a Pennsylvania state judicial election in 2019, the county's Republican Chairwoman said, "[n]othing went right on Election Day. Everything went wrong. That's a problem."[16] These problems threaten the integrity of our elections and demonstrate the importance of election systems that are strong, durable, and not vulnerable to attack.

McCarthy Group reportedly owns or has had investments in ES&S, a major election technology vendor. In order to help us understand your firm's role in this sector, we ask that you provide answers to the following questions no later than December 20, 2019.

1. Please provide the disclosure documents and information enumerated in Sections 501 and 503 of the *Stop Wall Street Looting Act*.[17]

2. Which election technology companies, including all affiliates or related entities, does McCarthy Group have a stake in or own? Please provide the name of and a brief description of the services each company provides.

    a. Which election technology companies, including all affiliates or related entities, has McCarthy Group had a stake in or owned in the past twenty

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[11] AP News, "US election integrity depends on security-challenged firms," Frank Bajak, October 29, 2018, https://apnews.com/f6876669cb6b4e4c9850844f8e015b4c; Penn Wharton Public Policy Initiative, "The Business of Voting," July 2018, https://publicpolicy.wharton.upenn.edu/live/files/270-the-business-of-voting.

[12] Brennan Center for Justice, "America's Voting Machines at Risk," Lawrence Norden and Christopher Famighetti, 2015, https://www.brennancenter.org/sites/default/files/publications/Americas_Voting_Machines_At_Risk.pdf.

[13] Associated Press, "AP Exclusive: New election systems use vulnerable software," Tami Abdollah, July 13, 2019, https://apnews.com/e5e070c31f3c497fa9e6875f426ccde1.

[14] Vice, "Here's Why All the Voting Machines Are Broken and the Lines Are Extremely Long," Jason Koebler and Matthew Gault, November 6, 2018, https://www.vice.com/en_us/article/59vzgn/heres-why-all-the-voting-machines-are-broken-and-the-lines-are-extremely-long.

[15] Vice, "Exclusive: Critical U.S. Election Systems Have Been Left Exposed Online Despite Official Denials," Kim Zetter, August 8, 2019, https://www.vice.com/en_us/article/3kxzk9/exclusive-critical-us-election-systems-have-been-left-exposed-online-despite-official-denials.

[16] New York Times, "A Pennsylvania Country's Election Day Nightmare Underscores Voting Machine Concerns," Nick Corasaniti, November 30, 2019, https://www.nytimes.com/2019/11/30/us/politics/pennsylvania-voting-machines.html.

[17] Stop Wall Street Looting Act, S.2155, https://www.congress.gov/bill/116th-congress/senate-bill/2155.

years? Please provide the name of and a brief description of the services each company provides or provided.

b. For each election technology company McCarthy Group had a stake in or owned in the past twenty years, including all affiliates or related entities, please provide the following information for each year that the firm has had a stake in or owned this company and the five years preceding the firm's investment.
   i. The name of the company
   ii. Ownership stake
   iii. Total revenue
   iv. Net income
   v. Percentage of revenue dedicated to research and development
   vi. Total number of employees
   vii. A list of all state and local jurisdictions with which the company has a contract to provide election related products or services
   viii. Other private-equity firms that own a stake in the company

3. Has any election technology company, including all affiliates or related entities, in which McCarthy Group has an ownership stake or has had an ownership stake in the last twenty years, been found to have been in noncompliance with the EAC's Voluntary Voting System Guidelines? If so, please provide a copy of each EAC noncompliance notice received by the company and a description of what steps the company took to resolve each issue.

4. Has any election technology company, including all affiliates or related entities, in which McCarthy Group has an ownership stake or has had an ownership stake in the last twenty years, been found to have been in noncompliance with any state or local voting system guidelines or practices? If so, please provide a list of all such instances and a description of what steps the company took to resolve each issue.

5. Has any election technology company, including all affiliates or related entities, in which McCarthy Group has an ownership stake or has had an ownership stake in the last twenty years, been found to have violated any federal or state laws or regulations? If so, please provide a complete list, including the date and description, of all such violations.

6. Has any election technology company, including all affiliates or related entities, in which McCarthy Group has an ownership stake or has had an ownership stake in the last twenty years, reached a settlement with any federal or state law enforcement entity related to a potential violation of any federal or state laws or regulations? If so, please provide a complete list, including the date and description, of all such settlements.

7. Has any election technology company, including all affiliates or related entities, in which McCarthy Group has an ownership stake or has had an ownership stake in the

past twenty years, reached a settlement with any state or local jurisdiction related to a potential violation of or breach of contract? If so, please provide a complete list, including the date and description, of all such settlements.

Thank you for your attention to this matter.

Sincerely,

Elizabeth Warren
United States Senator

Amy Klobuchar
United States Senator

Ron Wyden
United States Senator

Mark Pocan
Member of Congress

Congress of the United States

Washington, DC 20510

December 6, 2019

Stephen D. Owens
Managing Director
Staple Street Capital Group, LLC
[redacted]

Hootan Yaghoobzadeh
Managing Director
Staple Street Capital Group, LLC
[redacted]

Dear Messrs. Owens and Yaghoobzadeh:

We are writing to request information regarding Staple Street Capital Group, LLC's (Staple Street) investment in Dominion Voting System (Dominion) one of three election technology vendors responsible for developing, manufacturing and maintaining the vast majority of voting machines and software in the United States, and to request information about your firm's structure and finances as it relates to this company.

Some private equity funds operate under a model where they purchase controlling interests in companies and implement drastic cost-cutting measures at the expense of consumers, workers, communities, and taxpayers. Recent examples include Toys "R" Us and Shopko.[1] For that reason, we have concerns about the spread and effect of private equity investment in many sectors of the economy, including the election technology industry—an integral part of our nation's democratic process. We are particularly concerned that secretive and "trouble-plagued companies,"[2] owned by private equity firms and responsible for manufacturing and maintaining voting machines and other election administration equipment, "have long skimped on security in favor of convenience," leaving voting systems across the country "prone to security problems."[3] In light of these concerns, we request that you provide information about your firm, the portfolio

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[2] ProPublica, "The Market for Voting Machines Is Broken. This Company Has Thrived in It.," Jessica Huseman, October 28, 2019, https://www.propublica.org/article/the-market-for-voting-machines-is-broken-this-company-has-thrived-in-it.

[3] Associated Press News, "US Election Integrity Depends on Security-Challenged Firms," Frank Bajak, October 28, 2019, https://apnews.com/f6876669cb6b4e4c9850844f8e015b4c.

companies in which it has invested, the performance of those investments, and the ownership and financial structure of your funds.

Over the last two decades, the election technology industry has become highly concentrated, with a handful of consolidated vendors controlling the vast majority of the market. In the early 2000s, almost twenty vendors competed in the election technology market.[4] Today, three large vendors—Election Systems & Software, Dominion, and Hart InterCivic—collectively provide voting machines and software that facilitate voting for over 90% of all eligible voters in the United States.[5] Private equity firms reportedly own or control each of these vendors, with very limited "information available in the public domain about their operations and financial performance."[6] While experts estimate that the total revenue for election technology vendors is about $300 million, there is no publicly available information on how much those vendors dedicate to research and development, maintenance of voting systems, or profits and executive compensation.[7]

Concentration in the election technology market and the fact that vendors are often "more seasoned in voting machine and technical services contract negotiations" than local election officials, give these companies incredible power in their negotiations with local and state governments. As a result, jurisdictions are often caught in expensive agreements in which the same vendor both sells or leases, and repairs and maintains voting systems–leaving local officials dependent on the vendor, and the vendor with little incentive to substantially overhaul and improve its products.[8] In fact, the Election Assistance Commission (EAC), the primary federal body responsible for developing voluntary guidance on voting technology standards, advises state and local officials to consider "the cost to purchase or lease, operate, and maintain a voting system over its life span … [and to] know how the vendor(s) plan to be profitable" when signing contracts, because vendors typically make their profits by ensuring "that they will be around to maintain it after the sale." The EAC has warned election officials that "[i]f you do not manage the vendors, they will manage you."[9]

Election security experts have noted for years that our nation's election systems and infrastructure are under serious threat. In January 2017, the U.S. Department of Homeland Security designated the United States' election infrastructure as "critical infrastructure" in order to prioritize the protection of our elections and to more effectively assist state and local election

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[5] Penn Wharton Public Policy Initiative, "The Business of Voting," July 2018, https://publicpolicy.wharton.upenn.edu/live/files/270-the-business-of-voting.

[6] Id.

[7] Id.

[8] Brennan Center for Justice, "America's Voting Machines at Risk," Lawrence Norden and Christopher Famighetti, 2015, https://www.brennancenter.org/sites/default/files/publications/Americas_Voting_Machines_At_Risk.pdf; Penn Wharton Public Policy Initiative, "The Business of Voting," July 2018, https://publicpolicy.wharton.upenn.edu/live/files/270-the-business-of-voting.

[9] U.S. Election Assistance Commission, "Ten Things to Know About Selecting a Voting System," October 14, 2017, https://www.eac.gov/documents/2017/10/14/ten-things-to-know-about-selecting-a-voting-system-cybersecurity-voting-systems-voting-technology/.

officials in addressing these risks.[10] However, voting machines are reportedly falling apart across the country, as vendors neglect to innovate and improve important voting systems, putting our elections at avoidable and increased risk.[11] In 2015, election officials in at least 31 states, representing approximately 40 million registered voters, reported that their voting machines needed to be updated, with almost every state "using some machines that are no longer manufactured."[12] Moreover, even when state and local officials work on replacing antiquated machines, many continue to "run on old software that will soon be outdated and more vulnerable to hackers."[13]

In 2018 alone "voters in South Carolina [were] reporting machines that switched their votes after they'd inputted them, scanners [were] rejecting paper ballots in Missouri, and busted machines [were] causing long lines in Indiana."[14] In addition, researchers recently uncovered previously undisclosed vulnerabilities in "nearly three dozen backend election systems in 10 states."[15] And, just this year, after the Democratic candidate's electronic tally showed he received an improbable 164 votes out of 55,000 cast in a Pennsylvania state judicial election in 2019, the county's Republican Chairwoman said, "[n]othing went right on Election Day. Everything went wrong. That's a problem."[16] These problems threaten the integrity of our elections and demonstrate the importance of election systems that are strong, durable, and not vulnerable to attack.

Staple Street reportedly owns or has had investments in Dominion, a major election technology vendor. In order to help us understand your firm's role in this sector, we ask that you provide answers to the following questions no later than December 20, 2019.

1. Please provide the disclosure documents and information enumerated in Sections 501 and 503 of the *Stop Wall Street Looting Act*.[17]

2. Which election technology companies, including all affiliates or related entities, does Staple Street have a stake in or own? Please provide the name of and a brief description of the services each company provides.

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[10] Department of Homeland Security, "Statement by Secretary Jeh Johnson on the Designation of Election Infrastructure as a Critical Infrastructure Subsector," January 6, 2017, https://www.dhs.gov/news/2017/01/06/statement-secretary-johnson-designation-election-infrastructure-critical.

[11] AP News, "US election integrity depends on security-challenged firms," Frank Bajak, October 29, 2018, https://apnews.com/f6876669cb6b4e4c9850844f8e015b4c; Penn Wharton Public Policy Initiative, "The Business of Voting," July 2018, https://publicpolicy.wharton.upenn.edu/live/files/270-the-business-of-voting.

[12] Brennan Center for Justice, "America's Voting Machines at Risk," Lawrence Norden and Christopher Famighetti, 2015, https://www.brennancenter.org/sites/default/files/publications/Americas_Voting_Machines_At_Risk.pdf.

[13] Associated Press, "AP Exclusive: New election systems use vulnerable software," Tami Abdollah, July 13, 2019, https://apnews.com/e5e070c31f3c497fa9e6875f426ccde1.

[14] Vice, "Here's Why All the Voting Machines Are Broken and the Lines Are Extremely Long," Jason Koebler and Matthew Gault, November 6, 2018, https://www.vice.com/en_us/article/59vzgn/heres-why-all-the-voting-machines-are-broken-and-the-lines-are-extremely-long.

[15] Vice, "Exclusive: Critical U.S. Election Systems Have Been Left Exposed Online Despite Official Denials," Kim Zetter, August 8, 2019, https://www.vice.com/en_us/article/3kxzk9/exclusive-critical-us-election-systems-have-been-left-exposed-online-despite-official-denials.

[16] New York Times, "A Pennsylvania Country's Election Day Nightmare Underscores Voting Machine Concerns," Nick Corasaniti, November 30, 2019, https://www.nytimes.com/2019/11/30/us/politics/pennsylvania-voting-machines.html.

[17] Stop Wall Street Looting Act, S.2155, https://www.congress.gov/bill/116th-congress/senate-bill/2155.

a. Which election technology companies, including all affiliates or related entities, has Staple Street had a stake in or owned in the past twenty years? Please provide the name of and a brief description of the services each company provides or provided.

b. For each election technology company Staple Street had a stake in or owned in the past twenty years, including all affiliates or related entities, please provide the following information for each year that the firm has had a stake in or owned this company and the five years preceding the firm's investment.
   i. The name of the company
   ii. Ownership stake
   iii. Total revenue
   iv. Net income
   v. Percentage of revenue dedicated to research and development
   vi. Total number of employees
   vii. A list of all state and local jurisdictions with which the company has a contract to provide election related products or services
   viii. Other private-equity firms that own a stake in the company

3. Has any election technology company, including all affiliates or related entities, in which Staple Street has an ownership stake or has had an ownership stake in the last twenty years, been found to have been in noncompliance with the EAC's Voluntary Voting System Guidelines? If so, please provide a copy of each EAC noncompliance notice received by the company and a description of what steps the company took to resolve each issue.

4. Has any election technology company, including all affiliates or related entities, in which Staple Street has an ownership stake or has had an ownership stake in the last twenty years, been found to have been in noncompliance with any state or local voting system guidelines or practices? If so, please provide a list of all such instances and a description of what steps the company took to resolve each issue.

5. Has any election technology company, including all affiliates or related entities, in which Staple Street has an ownership stake or has had an ownership stake in the last twenty years, been found to have violated any federal or state laws or regulations? If so, please provide a complete list, including the date and description, of all such violations.

6. Has any election technology company, including all affiliates or related entities, in which Staple Street has an ownership stake or has had an ownership stake in the last twenty years, reached a settlement with any federal or state law enforcement entity related to a potential violation of any federal or state laws or regulations? If so, please provide a complete list, including the date and description, of all such settlements.

7. Has any election technology company, including all affiliates or related entities, in which Staple Street has an ownership stake or has had an ownership stake in the past twenty years, reached a settlement with any state or local jurisdiction related to a potential violation of or breach of contract? If so, please provide a complete list, including the date and description, of all such settlements.

Thank you for your attention to this matter.

Sincerely,

Elizabeth Warren
United States Senator

Amy Klobuchar
United States Senator

Ron Wyden
United States Senator

Mark Pocan
Member of Congress

Exh. 27 – Declaration of Eric Quinnell

Declaration of Eric Quinnell

1. My name is Dr. Eric Quinnell. I am over 18 years of age, and I am competent to testify in this action. All of the facts stated herein are true and based on my personal knowledge. All scientific conclusions herein are made to a reasonable degree of scientific certainty in my fields of expertise.

2. I received a Bachelor of Science Degree in Engineering in May of 2004, a Master of Science in Circuit Design in May of 2006, and a Doctorate in Computer Arithmetic in May of 2007, all from The University of Texas at Austin.

3. I have extensive professional experience as an engineer designing and leading teams engaged in various aspects of circuit architecture and processing. In this capacity, I frequently engage in complex and sophisticated predictive mathematical modeling and statistical analysis. I am required to prepare reports and analysis on the same for presentations to executives and other decision makers. I make this declaration in my personal capacity.

Executive Summary

4. I was asked to analyze the results of the 2020 General Election in Fulton County, Georgia to determine if there were any statistical anomalies in voting, and if so, to perform a predictive modeling analysis to analyze those anomalies.

5. When compared to the 2016 General Election Democrat to Republican voting ratio, the voting distribution gains for 2020 are well outside the 2016 ratio of a multiple of 2.52. Specifically, for every one additional voter for President Donald J. Trump ("Trump") over the full total from the 2016 General Election in Fulton County, former Vice-President Joseph R. Biden ("Biden") gained 4.2 additional voters over the full total from 2016 in Fulton County.

6. The Biden distribution kurtosis or "4th moment" shows a value classifying it as "platykurtic", which indicates as compared to the standard normal, the distribution lacks a "tail". This fact is irregular as we often expect our data to be close to a normal distribution. Significant deviations from the normalized distribution can indicate an event that is statistically unlikely. With the number of data points we have, it is reasonable to expect normal-like behavior.

7. At a county or district level of analysis, statistical anomalies appear in even greater ratios. For example, CountyJC, which was a majority Republican county in the 2106 General Election, showed Biden gained 4.6 new voters to every 1 new Trump voter. Biden also achieved >100% of all additional new votes above 2016 General Election total vote sum in some of CountyJC's districts—meaning Biden not only captured all votes in the district above the total from 2016, but took extra votes lost by the Libertarian column. In one specific district, Biden's new voter gains exceed 150% of the total new registrations over 2016 registrations in the same district.

8. Such local mathematical anomalies are not seen in all counties of Fulton County, but rather only a select few.[1]

9. I constructed a mathematical model that subtracted out local statistical anomalies and renormalized them according to their 2016 ratios, all while keeping pace with the additional turnout for Trump as a control. This allowed me to quantize a predicted number of anomalous votes per county, which are listed at the end of the Declaration. In all, I identified some 32,347 votes as statistically anomalous.

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[1] Fulton is split into "counties" with each county having a letter/number prefix and letter/number suffix, representing what is classically considered elsewhere a "precinct". Several precincts share prefixes as a super-group. Hereafter, I shall refer to the super-groups with common letter/number prefixes as "counties" and their sub-divisions unique by letter/number suffix as "districts".

Data Set Selection

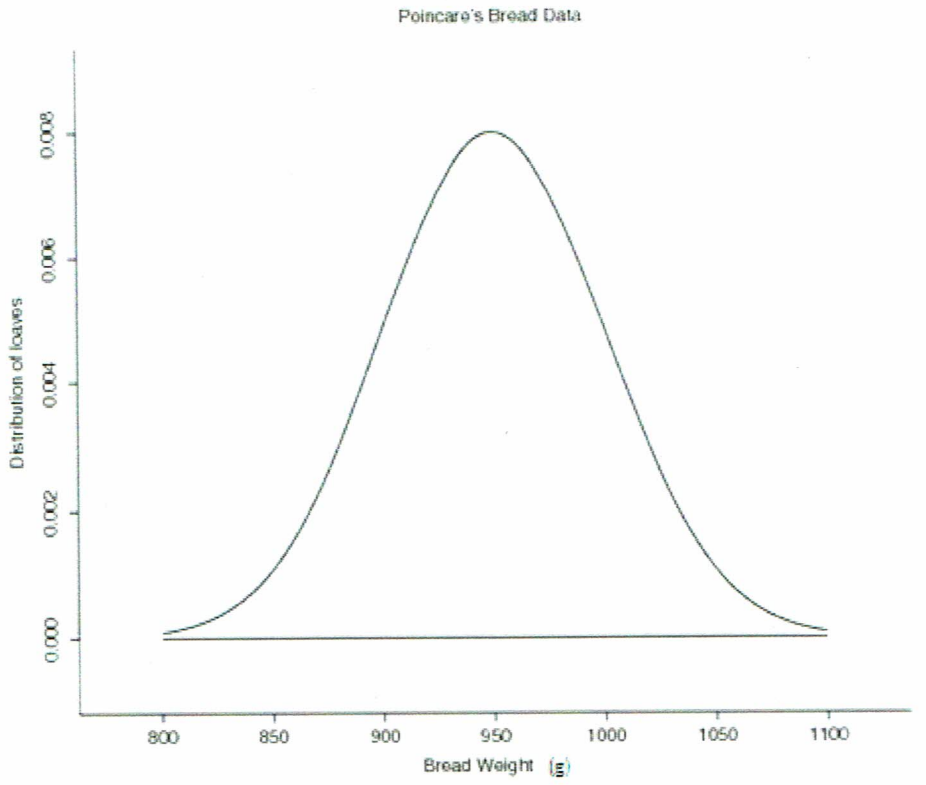
10. I retrieved publicly available data from the https://data.fultoncountyga.gov/Elections/Election-Results-General-Election-November-8-2016/eiwi-wrhe website containing the official Fulton County 2016 General Election Results. I also retrieved the publicly available unofficial Fulton County 2020 General Election Results from https://results.enr.clarityelections.com/GA/Fulton/105430/web.264614/#/detail/1 website as of November 11, 2020.

Basic Methodology

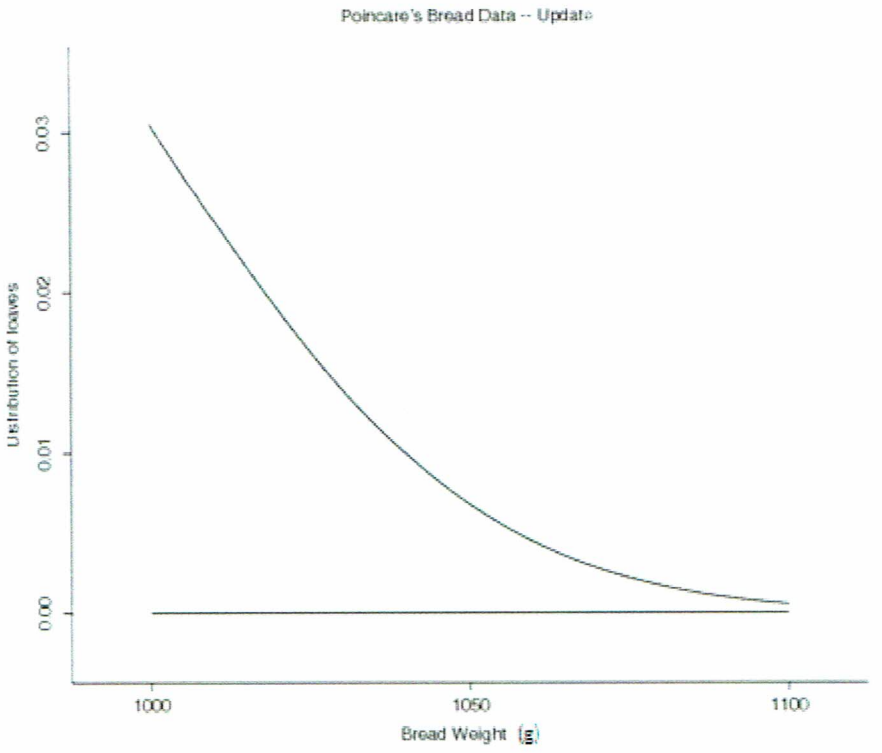
11. The anecdote of the 19th century French mathematician Henri Poincaré and a bread baker under his employ illustrate how one can use statistical inference to detect when agents are adjusting the data of the events under consideration. In particular, even if we only see part of behavior, we can often infer the rest.

12. Henri wished for a bakery he owned in Paris to produce bread that averaged 1kg in weight and provided capital accordingly to his baker. Every morning, the baker would bring bread to Henri, who, being a mathematician, would weigh the bread and record the weight in a log. After a year, Henri sued the baker for making bread consistently lighter than 1kg.

13. Henri's accusation was backed by the normal distribution of data (more commonly known as the "bell curve" or sometimes "Gaussian") of natural variation across a year of different bread. Henri said that the average (or "mean") of the weight of the bread was centered around 950g, and only weighing 1kg at a lower frequency. This means primitively that the weight of the bread he received was under the specified 1kg more than half the time.



14. The baker admitted his scheme, paid a fine, and was given a second chance to start being honest while working for Henri's bakery. The following year, the pattern repeated—the baker would bring bread to Henri, who would chart the weight. At the end of the year, Henri fired the baker for his continued scheme by showing him the plot of his newly logged bread-weight data.



15. The baker, caught again, asked how Henri managed to root out the scheme with this new graph, as it clearly says the bread was always at least 1kg. What Henri noticed is that when he plotted the frequencies of weights of the loaves, he did not see a distribution, but instead just a tail. This plot is indicative of the baker throwing away all data points less than 1kg. Henri told the baker that he inferred he didn't change his behavior, but merely always brought him the heaviest piece of bread in the day's batch.

16. Henri's correct observation of the statistical anomaly in this particular anecdote is an abuse of the "tail of the curve". In natural phenomena, nearly all repeated behaviors in nature have a universal variance—or a bell curve, albeit of different variants of shapes. History continues to show examples of such observable mathematical anomalies to the tail of a variance curve.

17. Most recently the 2008 sub-prime mortgage risk management featured an "abuse of the tail" when risk management bankers stuffed sub-prime risk into the tail of that very curve—allowing for immediate positive returns. However, when one stacks the tail over

and over with bad risk, eventually the tail becomes the center of the curve (called "platykurtic") and the bad risk finally materializes.

18. In addition to the mean[2] and the standard deviation[3], one can look at other statistics to get a sense of the shape of the distribution. The next two are the skewness[4] and the kurtosis[5]. These statistics are normalized by dividing by the standard deviation, so they are all of a comparable scale; the standard normal has a skewness of 0 and a kurtosis of 3. As we often expect our data to be close to a normal distribution, significant deviations from these values can indicate an event that is statistically anomalous.

Mathematical Signature of Differential Vote Gain Anomaly

19. To set a baseline of the variability of Atlanta's vote pattern changes from the 2016 General Election, I plot the natural distribution of gain/lost votes per specific district in a histogram plot for both Trump in Figure 1 and Biden in Figure 2 vote gains vs the 2016 General Election in the same areas:

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[2] "Mean" is the average value of a dataset.

[3] "Standard Deviation" is the scale of fluctuations about the mean.

[4] "Skew" or the "3rd moment" is the expected value of the cube of the fluctuations about the mean divided by the standard deviation. This tells us which side of the distribution has more mass.

[5] "Kurtosis" or the "4th moment" is the expected value of the fourth power of the fluctuations about the mean divided by the standard deviation, which informs us on how much of the tail is outside the main distribution.

	Trump Distribution
MEAN	59.70
STDEV	169.05
3-sigma	507.16
Skew	0.82
Kurtosis	20.10

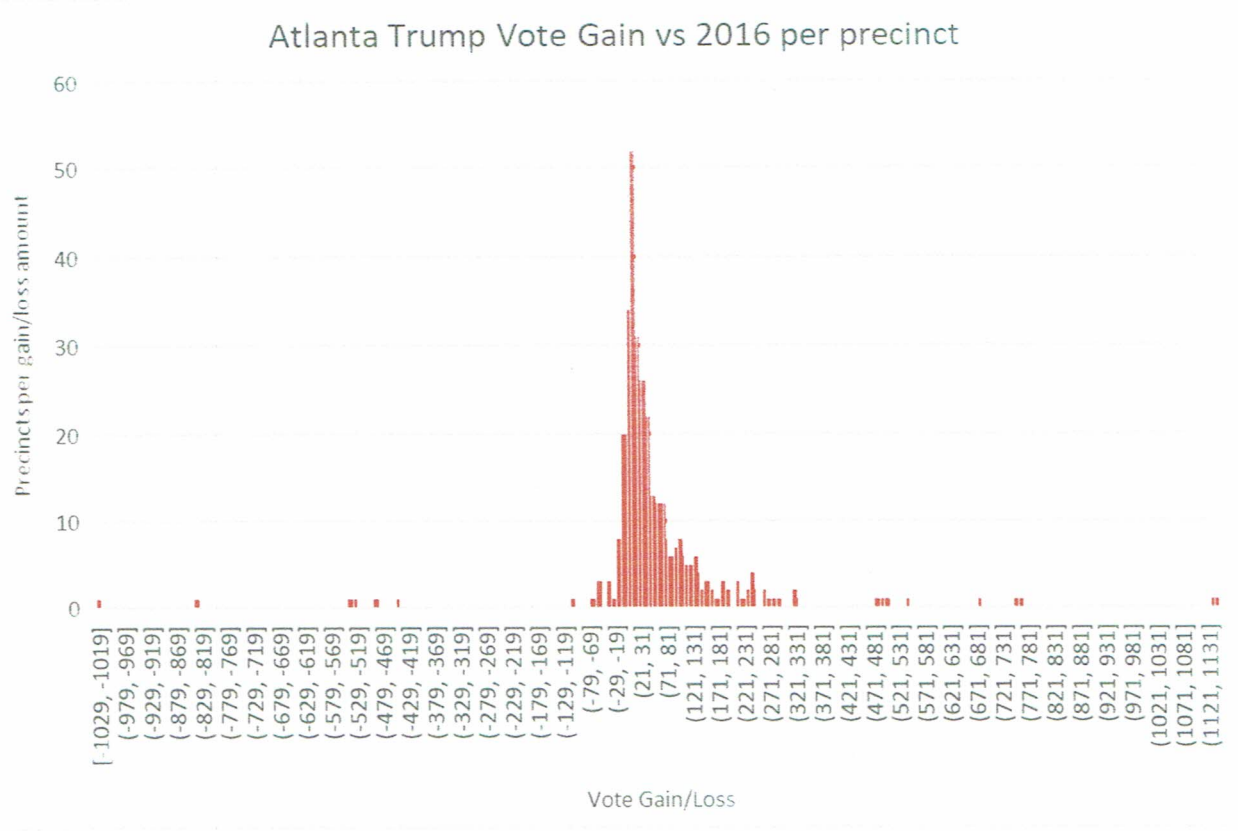

Figure 1. Trump Vote Gain Distribution

	Biden Distribution
MEAN	250.89
STDEV	340.59
3-sigma	1021.77
Skew	0.92
Kurtosis	**2.74**

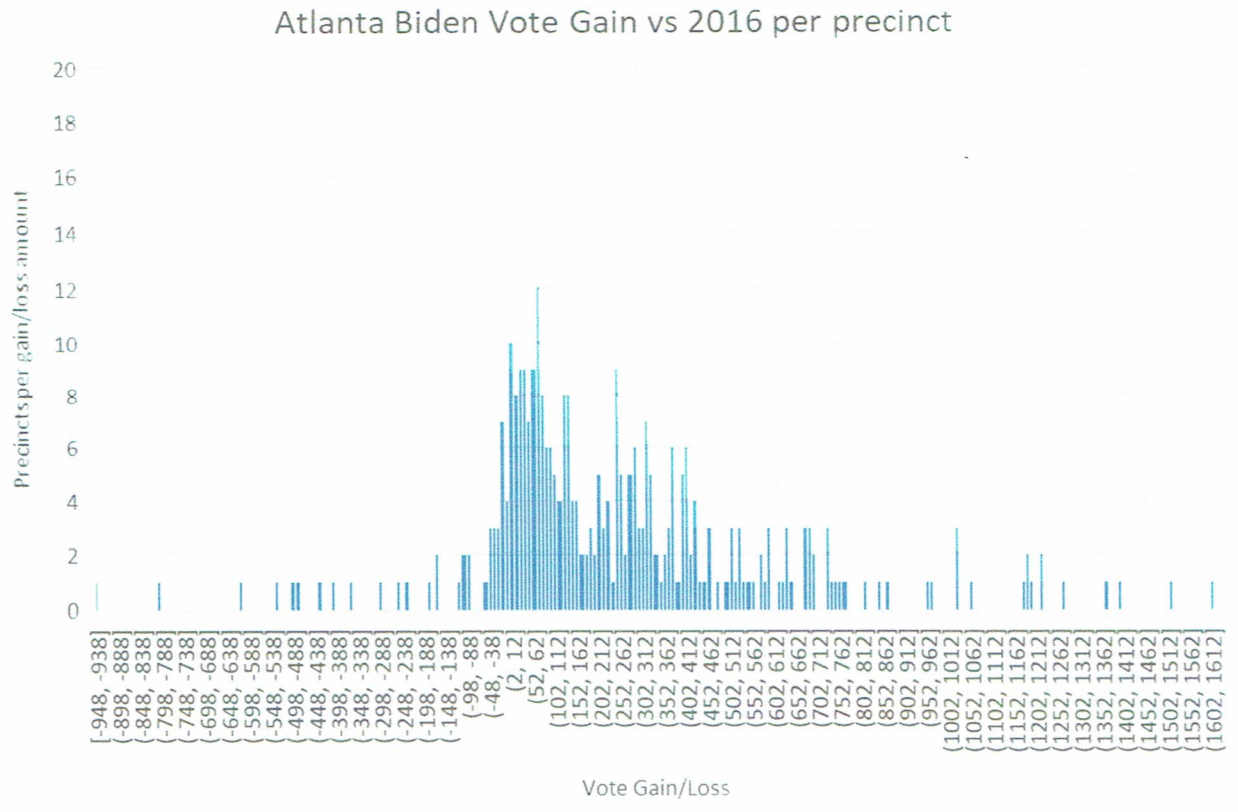

Figure 2. Biden Vote Gain Distribution

20. The "tail of the curve" in Biden's vote gain visually seems most unusual. To quantify, what's even more surprising are the values of the kurtosis of the distribution.

21. The kurtosis, or the measure of how much of the distribution is considered "the tail" is the real oddity here. Any numbers less than 3 in kurtosis make it platykurtic, with 3 being the kurtosis of a standard normal distribution as a baseline.

22. A distribution that is platykurtic roughly states that the tail of the distribution is not a tail, but rather part of the mean itself. To pull from the same example already cited, the 2008 mortgage collapse occurred when the sub-prime risk became platykurtic—meaning the high-risk sub-prime mortgages became the main risk curve and the bad bets were finally part of the mean.

23. Further, by calculating the gain in votes for both Trump and Biden over the respective 2016 total from the same districts, the Democratic/Republican ratio (D/R ratio or DEM/GOP ratio) of added votes gained for Biden over Trump was a high 4.2x.

	Gained Votes Avg. per District
Trump	59.7
Biden	250.89
Diff	191.19
2020 DEM/GOP New Vote Gain Ratio	4.2
%	81D / 19R
2016 DEM/GOP Ratio	2.52
%	69D / 27R

24. While this gain is quite anomalous, especially considering the historical voting ratio of the city—technically both the abnormal tail of Biden's curve and gained ratio fall under the standard deviation of the 200,000 new registered voters presumed from the new Georgia "motor-voter" law. Registrations from this law netted an average of 652 new registrations with a standard deviation of 699 new registrations vs 2016. In context, this mean and standard deviation infers that some counties lost voters, while others more than doubled their mean.

25. At the Fulton County level, the new influx of overwhelmingly Democratic new votes technically fits registration deviations. However, in select counties, when the new vote distribution is broken down into per county and per district changes, the ratios appear well outside the normal.

26. What's truly anomalous is that the ratios well outside the normal occurred commonly in districts roughly 50D/50R, or even in districts from the 2016 General Election which were leaning Republican. Some districts in this county show that Biden picked up over >100% of the new votes in excess to 2016 General Election totals—despite the fact that Trump also picked up votes in most of the same districts. Note yet another oddity in JC13B, where votes in excess of 2016 exceeds the registrations in excess of 2016.

** means redistricted

2016 Results							2020 Gain/Loss in Votes over 2016					
County	Trump	Clinton	Votes	Ratio Dem/Rep	Turnout	Dem % of Voters	Trump Gain	Biden Gain	New Votes	Gain Dem/Rep	New Vote % of Additional Registrations over 2016	Dem % of New Voters
JC01**	1322	1870	3312	1.41	78.3%	44.2%	251	1032	1194	4.1	72.9%	86.4%
JC02	697	722	1454	1.04	79.2%	39.3%	200	584	766	2.9	65.8%	76.2%
JC03A	199	196	412	0.98	87.1%	41.4%	-1	87	74	-87	61.2%	117.6%
JC03B	373	549	960	1.47	78.4%	44.9%	72	228	283	3.2	72.2%	80.6%
JC04**	1455	1501	3116	1.03	80.3%	38.7%	56	766	704	13.7	79.7%	108.8%
JC05	651	736	1468	1.13	78.8%	39.5%	49	318	315	6.5	64.8%	101.0%
JC06	1025	713	1793	0.70	76.3%	30.3%	-58	381	291	-6.6	59.4%	130.9%
JC07	1207	1390	2704	1.15	78.1%	40.1%	196	755	882	3.9	73.1%	85.6%
JC08	964	872	1946	0.90	81.3%	36.4%	49	395	362	8.1	67.5%	109.1%
JC09	806	1059	1954	1.31	78.1%	42.3%	141	367	450	2.6	60.2%	81.6%
JC10	619	800	1488	1.29	77.5%	41.6%	106	446	510	4.2	70.8%	87.5%
JC11	1224	897	2198	0.73	78.7%	32.1%	140	417	513	3.0	73.0%	81.3%
JC12	1177	579	1797	0.49	81.8%	26.4%	151	328	464	2.2	73.1%	70.7%
JC13A	1011	449	1521	0.44	80.1%	23.7%	56	319	327	5.7	78.0%	97.6%
JC13B	153	38	200	0.25	77.2%	14.7%	3	38	35	12.7	152.2%	108.6%
JC14	1000	708	1768	0.71	80.5%	32.2%	40	334	335	8.4	81.5%	99.7%
JC15	202	294	525	1.46	77.7%	43.5%	64	136	181	2.1	64.0%	75.1%
JC16	907	802	1811	0.88	82.5%	36.5%	69	306	300	4.4	58.6%	102.0%
JC18	1100	791	1991	0.72	81.1%	32.2%	51	355	340	7.0	84.6%	104.4%
JC19	1239	1251	2633	1.01	81.7%	38.8%	123	543	582	4.4	61.1%	93.3%

TOTAL	Trump	Clinton	Votes	2016 Dem/Rep	Turnout	Dem % of Voters	Trump Gain	Biden Gain	New Votes	Gain Dem/Rep	New Vote % of Additional Registrations over 2016	Dem % of New Voters
JC	17331	16217	35051	0.9	79.6%	49.4%	1758	8135	8908	4.6	70.0%	91.3%
		2016 D/R JC		~48D / 52 R				2020 D/R JC Gain		~82D / 18R		

Predictive Model to Identify Mathematically Anomalous Vote Totals

27. I constructed a reverse engineered predictive model to try and identify where such anomalies existed at a district level by using the 2016 General Election D/R total ratio per district and comparing

them to the same ratio in the same district in 2020. The Trump 2020 General Election vote gains are used as a control for the increase in turnout (generally) in Georgia as applied to both campaigns. The model is not presuming a standard normal distribution, but rather one with a mean that increases according to the 2016 General Election D/R ratio within a reasonable variance. The model is also constrained to attempt a result with a positive kurtosis above 3 (or with "excess kurtosis").

28. To achieve this, I did not create a distribution model from scratch. Rather, I began with the actual Biden 2020 General Election vote distribution and corrected anomalies from the original, district by district, until the distribution targets were achieved.

29. The predictive mathematical model creates a Biden vote gain distribution seen in Figure 3. The predictive vote gain distribution lacks a visually unusual tail. The model's mean is equal to the multiple of D/R ratios seen in the 2016 General Election and brings the Biden new vote skew to a 2x multiple of mass in the curve over Trump's skew. Finally, and likely most importantly, the prediction pulls the kurtosis back outside a platykurtic distribution.

	Predicted Biden Distribution
MEAN	150.63
STDEV	274.30
3-sigma	822.90
Skew	1.67
Kurtosis	6.03

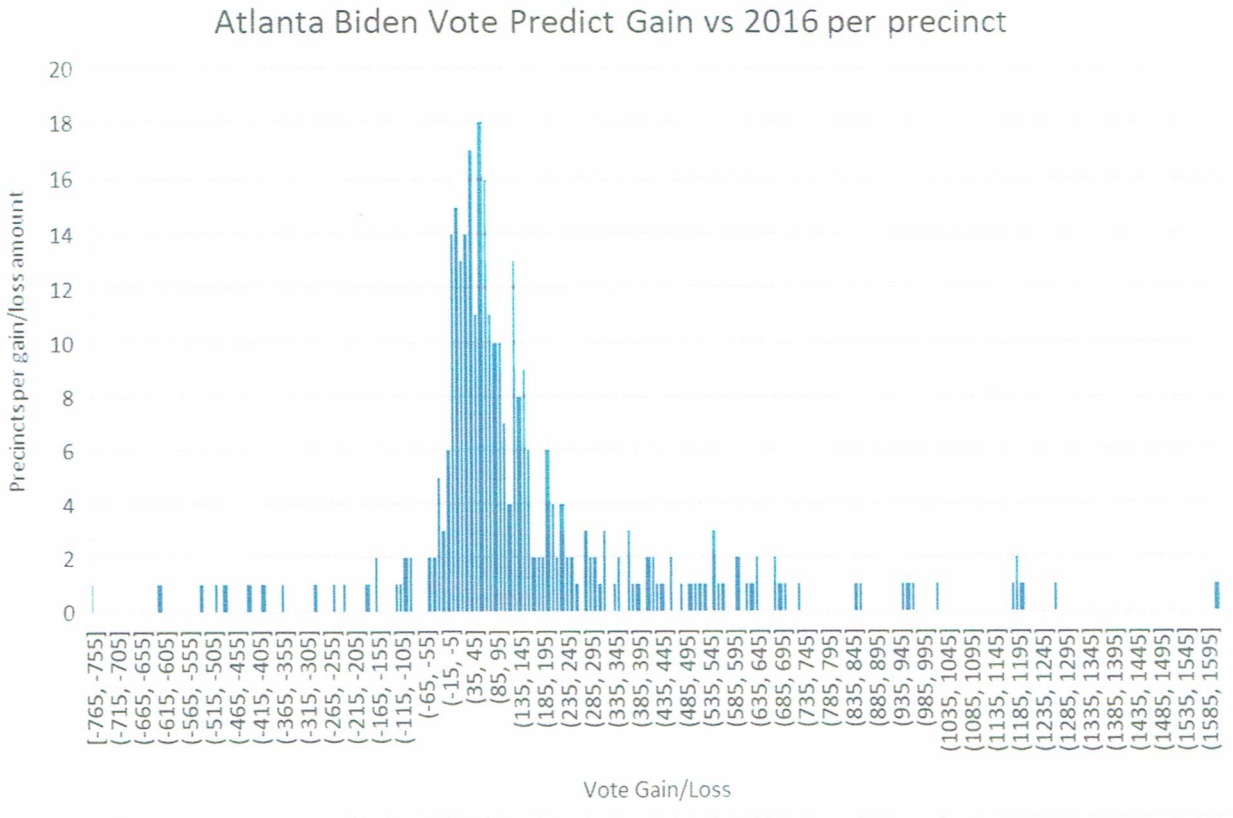

Figure 3. Biden Distribution Predicted Correction

30. The difference between the raw 2020 General Election data and the reverse-engineered predictive model follows.

The 2020 General Election raw data results are below:

2020	**Register**	**Voted**	**Biden**	**Trump**	**D/R**
Total	799612	520760	377586	136946	2.76
Turnout - underinflated b/c motor-votor	65.13%	share	72.51%	26.30%	

The predicted model, holding turnout and 2016 General Election ratios consistent and correlated to the Trump baseline in the 2020 General Election, are below:

Predicted 2020	Registered	Voted	Biden	Trump	D/R	Biden Vote Diff
Total	799612	488576	345402	136946	2.52	32347
Turnout	61.10%	Share	70.70%	28.00%	2016 ratio	

The difference between the 2020 General Election raw data and the predicted correction show exceedingly large vote block gains to only specific counties.

31. An observation of the actual election results in select counties identifies several thousands of anomalous votes distributed within their districts. The picture in Figure 4 communicates the necessary effect to reconstruct the actual election data from the predicted model.

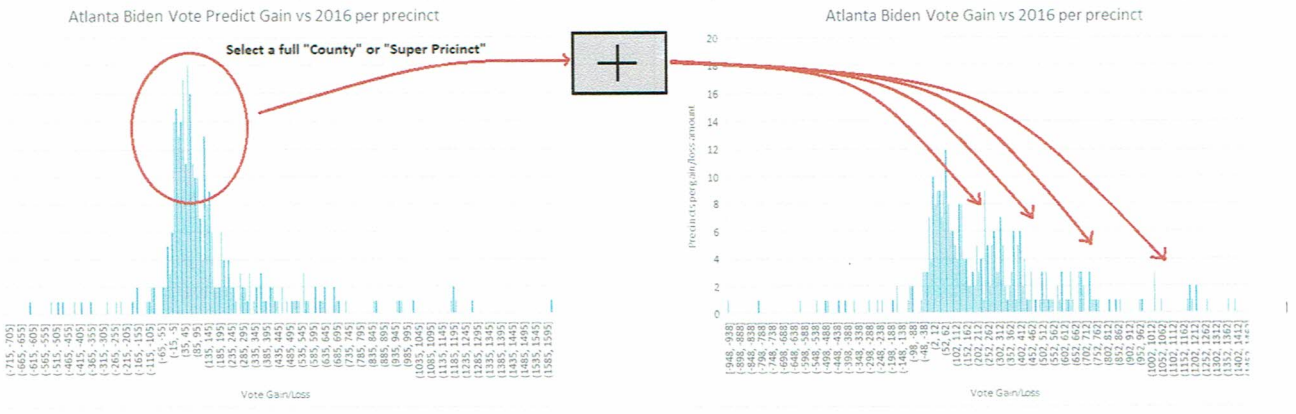

Figure 4. Reconstructing actual election data from predicted model

Full Predictive List of Biden Vote Gains Outside the Predicted Distribution in Fulton County

32. While some counties hold their 2016 ratio gains well within the historical variance and match the model perfectly, other counties or super districts stand out. Specifically, 139 districts of ~320 districts have a sum of ~32,347 votes exceeding the predicted model. These votes are statistically anomalous.

	County Totals
County	**Total Biden Votes Above Prediction**
County RW	6135
County JC	5822
County SS	4388
County 07	3239
County 08	2713
County ML	1704
County 06	1576
County AP	1142
County 09	1295
County 02	1139
County SC	541
County HP	269
County PA	258
County 03	182
County 01	169
County UC	148
County CP	139
County 04	81
County 05	67
County CH	34
County 12	7

33. As an example, a particular county well exceeding the model looks like this:

*** means redistricted from 2016*

County	**District**	**Total Biden Votes above Prediction**
County RW	**TOTAL**	**6135**
	RW01	526
	RW02	443
	RW03	401
	RW04	32
	RW05	190
	RW06	386
	RW07A	59
	RW07B	0
	RW08	270
	RW09**	591
	RW10	248
	RW11A	242
	RW12**	749
	RW13	487
	RW16	162
	RW17	224
	RW19	171
	RW20	245
	RW21	310
	RW22A	401

34. The entire list, sorted by total votes exceeding expected per district, is as follows. The ** indicates some form of re-districting versus 2016, which lowers the confidence of prediction in that specific district slightly due to unknown specifics of the partition.

** means redistricted from 2016

District	Total Biden Votes above Prediction
07A	881
*FA01***	813
*06D***	792
*RW12***	749
*JC04***	708
*JC01***	677
AP09A	621
SC211	600
*RW09***	591
JC07	529
RW01	526
07C	509
RW13	487
*SC07***	466
08J	458
07D	446
RW02	443
09M	425
JC19	419
RW03	401
RW22A	401
08B	400
RW06	386
JC02	377
ML05	373
SS11A	369
JC08	351
*ML01***	339
09F	336
02L2	332
*02A***	323
*ML03***	319
07F	318
JC18	318
JC11	314

RW21	310
JC10	309
ML06B	306
JC14	306
SS09B	305
SS17	304
CP011	302
JC13A	294
SS12	294
AP01C	285
SS29A	282
06J	278
RW08	270
HP01	269
ML04	263
JC05	263
PA01	258
08L	256
JC12	254
08A	251
RW10	248
08P	245
JC16	245
RW20	245
08G	244
RW11A	242
SS08D	240
07M	237
07J	233
09G	232
08F1	225
RW17	224
SS06	220
02E	217
*SC05***	216
07H	208
SS09A	201
SS03	200
SS31	199
08N2	194

SS08A	192
RW05	190
CP012	186
JC09	182
SS07A	181
SS05	177
09A	174
RW19	171
RW16	162
02B	161
07B	153
UC031	148
SS19A	147
08E	145
SS11B	142
06F	142
SS07B	139
AP07A	136
08C	133
SS02A	130
01B	130
09H	129
07E	127
07N	127
*SS2***	125
JC03B	122
JC06	116
03M	114
02W	106
ML06A	104
08N1	102
SS15A	102
CP02	98
06I	97
SS08C	82
04I	81
06B	80
SS15B	77
06L1	73
06Q	69

03P1A	67
05J	65
AP10	61
08K	60
RW07A	59
SC04	58
SS11D	57
SS08B	56
SC08F	56
SS16	54
SS02B	52
06E	44
CP05B	40
01D	39
AP03	38
JC13B	37
CH05	34
RW04	32
SS11C	32
SS18B	21
12G	7
SS18A	6
05D	3
SS07C	3
JC03A	1

I declare under the penalty of perjury that the foregoing is true and correct.

November 19, 2020

Eric Quinnell, Ph.D.

Exh. 28 – Affidavit of Mitchell Harrison

CB Document 1-28 Filed

AFFIDAVIT

STATE OF GEORGIA

COUNTY OF CHEROKEE

Personally appeared before the undersigned attesting officer, duly authorized to administer oaths in said State and County, Mitchell Harrison, who after being duly sworn, deposes and says upon oath:

1. My name is Mitchell Harrison, and I am a resident of Cherokee County Georgia. I am a college student, but also work for the Georgia Republican party as a Field Organizer. I am over the age of 18 and make these statements based on my personal knowledge of the facts, matters and events described herein.

2. As part of my assignment with the Georgia Republican party, I was to monitor ballot counting and processing in Fulton County. On the evening of election night, November 3, 2020 I reported to the Fulton elections office located at 1365 English Street in Atlanta. There I met with Brandon Moye, the Regional Field Director. Brandon assigned Michelle Branton and I to go observe the counting of absentee and military ballots at the State Farm arena location in downtown Atlanta. I understood that Michelle and I were to be involved in closely monitoring the ballot counting process.

3. After arrival at State Farm Arena, Michelle and I were taken to an observation area located on Level S. Besides Michelle and myself, there was also a news crew from Fox News and I believe 11 Alive. For Fox News this included their broadcaster, photographer, and producer. The observation area itself was roped off, leaving us very far away from the ballot counting activity we were assigned to monitor. Also, there were certain areas of the large counting room that we could not see at all due to angles, doors, and walls. We were specifically instructed by Fulton officials that we could not leave that area to observe from any other location or vantage point.

4. The room where the ballot processing took place is a very large room and there were at least 25 employees working there, I am not sure of the exact number. Michelle and I noted that Robb Pitts, the Chairman of the Fulton County Commission was in the counting room and stayed there

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for much of the night. Also, Joe Carn, another Fulton Commission member was in the counting room area, and he actually spoke with us briefly.

5. It was frustrating during the time Michelle and I were there because we were kept so isolated from where the ballot processing and counting activity was actually taking place. The location and layout of the observation area, ironically, made it difficult to observe much that was going on in the ballot counting area.

6. For example, the machine that copied the UOCAVA electronically received ballots (sometimes called military ballots) onto paper copies could only be viewed from the side and the doors to that area were positioned in a way that prevented us from any viewing of this process. Additionally, the scanners that scanned the absentee ballots were not visible to us at all.

7. The only way we knew that the scanners were located across this large room and was that Regina Waller, Public Affairs Manager for Elections spoke to us at one point and she described the process to Michelle and to me. There were several different news crews that came and went that evening from this same observation area.

8. Sometime after 10 o'clock p.m., the counting activity slowed. Shortly afterward, a younger lady with long braided but blond hair yelled out to all of them they should stop working and come back tomorrow (the next day, Wednesday November 4th) at 8:30 A.M.. Thereafter, all but 4 election employees left State Farm, leaving just the blond haired lady (who Michelle and I assumed was the supervisor), two older ladies and Regina Waller at the location. This lady had appeared through the night and Michelle and I believed her to be the supervisor.

9. Another task we had been given by Brandon was to inquire how many ballots had been processed and how many were still left to go. We posed these questions to Regina Waller, the Public Affairs Manager for Elections. She seemed uncomfortable at times answering us, and she called someone which we interpreted as asking for help on how to respond to us. Ultimately, she refused to answer our questions and told us we had to "look it up on the website". In all, we asked Regina Waller for this information at least three separate times and she would not give us an answer.

10. After concluding that Regina Waller would not give us this information on the number processed versus the ones still left to be processed, we along with the Fox News crew left the

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State Farm Arena shortly after 10:30 p.m. When we left, Regina, the "supervisor" and only two other people remained in the area of the scanners.

11. We were then told to return to the Fulton County Board of Elections Warehouse on English Street. Shortly after we arrived at the Warehouse Facility, Regina Waller entered the facility within 15-20 minutes of when we arrived. The English Street facility is a huge warehouse storing election machines, scanners and other election equipment.

12. Sometime thereafter while still at English Street, we heard from news crews that ballot counting was still going on at State Farm Arena, even though we were told it had ceased for the night and would not resume until Wednesday morning. So, Brandon Moye asked Trevin McKoy and I to go back to State Farm arena. This was just before 1:00 A.M. on Wednesday morning.

13. When Trevin McKoy and I arrived at State Farm, we were told that counting had been going on, but had just ended in the last few minutes. We asked the security representative to take us to the ballot counting area, initially he was hesitant and called his supervisor for instruction. That second person arrived and he agreed to take us in. He told us his name was Phillip. When we arrived at the same observation area, there was no one counting ballots. Again we were told that those counting the ballots had "just finished" and that there had been about 5 people there. Trevin and I thought that was odd because at 10:30 P.M., Regina Waller and the supervisor lady had said they were done counting for the night, and would not resume until 8:30 A.M. the next morning.

FURTHER THE AFFIANT SAYETH NOT.

Mitchell Harrison

Sworn to and subscribed before me

this _____ day of November, 2020.

_____

Notary Public

Exh. 29 – Affidavit of Michelle Branton

AFFIDAVIT

STATE OF GEORGIA

COUNTY OF COBB

Personally appeared before the undersigned attesting officer, duly authorized to administer oaths in said State and County, Michelle Branton, who after being duly sworn, deposes and says upon oath:

1. My name is Michelle Branton, and I am a resident of Cobb County Georgia. I am employed by Georgia Republican party as a Field Organizer. I am over the age of 18 and make these statements based on my personal knowledge of the facts, matters and events described herein.

2. As I stated, I am employed by the Georgia Republican Party and so for the November 3, 2020 General Election, I was to be involved in monitoring the ballot counting process. On the night of the November 3rd election, I was assigned by Regional Field Director Brandon Moye to be a Poll Watcher and to report to the Fulton County Board of Elections Warehouse, located at 1365 English Street NW, Atlanta, Georgia, at 6:30 p.m..

3. After arrival, I was then reassigned to the State Farm Arena in downtown Atlanta to watch the processing of Absentee Ballots and arrived at around 8:15 p.m. At State Farm arena, I joined Mitchell Harrison, Field Organizer for the GAGOP. Mitchell and I entered the State Farm Arena at the same time as the news crew from Fox News which included their broadcaster, photographer, and producer.

4. Upon arrival in the processing room located on Level S of State Farm Arena, we were supposed to watch the processing of the Absentee Ballots from the observation area which was delineated by a fenced area of roping secured by posts. This observation area we were put in was very distant from the staff actually processing the ballots. The room where the ballot processing took place is a very large room, and this distance effectively prevented our actual observation of the process. In addition, other areas of this -- again very large -- room were not visible at all from our observation area.

5. For example, the machine that copied the UOCAVA electronically received ballots (sometimes called military ballots) onto a paper copy of same could only be viewed from the side and the

doors to that area were positioned in a way that prevented us from any viewing of this process. Additionally, the scanners that scanned the absentee ballots were not visible to us at all.

6. The only way we knew that the scanners were located across this large room and was that Regina Waller, Public Affairs Manager for Elections was onsite and she described the process to Mitchell and me. There were several different news crews that came and went that evening from this same observation area. The Chairman of the Fulton County Commission, Robb Pitts, was there most of the night along with his personal assistant, another lady, and his security guard. At the time, I thought it was unusual that the Commission Chairman would be personally involved in the processing of ballots. Chairman Pitts left before the processing stopped later that evening. Additionally, Joe Carn, another Fulton County Commissioner was also onsite. Mr. Carn stayed until right before the processing stopped and spoke with Mitchell and me. Regina Waller, Public Affairs Manager for Elections for Fulton County was also onsite for the entire time and was still onsite when we departed.

7. As the night progressed, most of the staff processing the removal of the inner envelopes and ballots from the outer envelope of the Absentee Ballots stopped working; however, there was one employee that continued working when the others had stopped. That last employee to finish was a younger woman. After that last employee completed her stack at approximately 10:30 p.m., a woman across the room where the scanners were allegedly located yelled to everyone to stop working and to return the next day at 8:30 a.m. This lady had appeared through the night and Mitchell and I believed her to be the supervisor. The supervisor was an approximately 35-35 year old female, with hair that was blonde and braided which came at least to the middle of her back in length.

8. After the "supervisor" gave her instruction, nearly all of the staff workers left, except the supervisor described above, another much older lady that had a shirt on that said "Ruby" on it, and one other lady that I cannot recall her appearance, and Regina Waller, the Public Affairs Manager for Elections. so, at the time that work stopped at about 10:30 I recall those four employees remaining.

9. At this same time,, we along with the Fox News crew were the only other persons as I recall left in the room. We had been instructed by Brandon Moye to obtain the number of ballots processed and the number that were still remaining to be processed We attempted to obtain

this information three separate times from Regina Waller and she would not give an answer and she also appeared to be calling someone asking them for advice on how to respond to our request. Afterwards, Regina Waller would only say "it could be obtained on the website".

10. After concluding that Regina Waller would not give us this information on the number processed versus the ones still left to be processed,, we along with the Fox News crew left the State Farm Arena shortly after 10:30 p.m. When we left, Regina, the "supervisor" and only two other people remained in the area of the scanners, the lady with the "Ruby" on her shirt was sanitizing the tables and tablecloths, and the third lady was further across the room and I could not tell what she was doing. Regina Waller was sending an email, as she relayed to us, when we left.

11. We were then told to return to the Fulton County Board of Elections Warehouse on English Avenue. Shortly after we arrived at the Warehouse Facility, Regina Waller entered the facility within 15-20 minutes of when we arrived. The English Avenue facility is a huge warehouse storing election machines, scanners and other election equipment.

12. Sometime thereafter while still at English Avenue, Mitchell Harrison and Brandon Moye advised they heard counting was still going on at State Farm Arena and Mitchell Harrison and Trevin McKoy, field organizers, were sent to confirm the ballots were again being counted at the State Farm Arena. I did not go with them on the return to State Farm.

FURTHER THE AFFIANT SAYETH NOT.

Michelle Branton

Sworn to and subscribed before me
this 8th day of November, 2020.

Heidi Atrian
Notary Public

HEIDI ATRIAN
NOTARY PUBLIC
COBB COUNTY
GEORGIA
EXPIRES
October 19, 2024
W-00473072