

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, <i>et al.</i> ,	)	
	)	
Defendants.	)	
_____	)	

**PLAINTIFF’S EMERGENCY MOTION FOR INJUNCTIVE RELIEF AND  
MEMORANDUM OF LAW IN SUPPORT THEREOF**

COMES NOW Plaintiff **L. Lin Wood, Jr.** (“Plaintiff”), by and through his undersigned counsel of record, and files this his Emergency Motion for Injunctive Relief and Memorandum of Law in Support Thereof (the “Motion”), respectfully showing this honorable Court as follows:<sup>1</sup>

Plaintiff, an individual residing in Fulton County, Georgia, is a qualified, registered “elector” who possesses all of the qualifications for voting in the State of

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<sup>1</sup> This action and the instant Motion pertain to the certification of Georgia’s results from the November 3, 2020 general election. The results are to be certified on November 20, 2020, and as such, Plaintiff request an immediate hearing on this Motion and that review of the Motion otherwise be expedited pursuant to Local Rule 7.2(B).

Georgia. *See* O.C.G.A. §§ 21-2-2(7), 21-2-216(a); (*see also* Verified Am. Compl. for Decl. and Inj. Relief (the “Complaint”), ¶ 8). Plaintiff seeks declaratory relief and an emergency injunction from this Court halting the certification of Georgia’s results for the November 3, 2020 presidential election. As a result of the defendants’ violations of the United States Constitution and other election laws, Georgia’s election tallies are suspect and tainted with impropriety. Thus, this Court should issue an injunction to bar the certification of those results until Plaintiff’s substantive claims can be heard to ensure that Georgia’s electoral process is restored to a system of fairness.

## **II. STATEMENT OF FACTS AND PROCEDURAL HISTORY.**

### **A. The Complaint.**

On November 13, 2020, Plaintiff filed his original Verified Complaint for Declaratory and Injunctive Relief, which was subsequently amended. The named defendants include Defendant Brad Raffensperger, in his official capacity as Secretary of State of Georgia and as Chairperson of Georgia’s State Election Board, as well as the other members of the State Election Board in their official capacities – Rebecca N. Sullivan, David J. Worley, Matthew Mashburn, and Anh Le (hereinafter the “State Election Board”). (*See* Compl., ¶¶ 9-10.)

The Complaint alleges violations of the United States Constitution and the

amendments thereto in the regards to the November 3, 2020 general election, as well as the “full hand recount” of all ballots cast in that election, to be completed by November 18, 2020 (the “Hand Recount”), with those same violations likely to occur again in the January 5, 2021 run-off election for Georgia’s United States Senators. (*See generally id.*) The Complaint sets forth the following:

**B. Federal Constitutional Protections for Free and Fair Elections.**

The Elections Clause of the United States 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*; 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, cl. 1 (emphasis added); (*see* Compl., ¶ 12). Regulations of congressional and presidential elections, thus, “must be in accordance with the method which the state has prescribed for legislative enactments.” *Smiley v. Holm*, 285 U.S. 355, 367 (1932); *see also Ariz. St. Leg. v. Ariz. Indep. Redistricting Comm’n*, 576 U.S. 787, 807-08 (2015); (*see* Compl., ¶ 13). In Georgia, the “legislature” is the General Assembly (the “Georgia Legislature”). *See* Ga. Const. Art. III, § I, Para. I; (*see* Compl., ¶ 14).

Because the Constitution reserves for state legislatures the power to set the time, place, and manner of holding federal elections, state executive officers have

no authority to unilaterally exercise that power, much less flout existing legislation, nor to ignore existing legislation. (*See* Compl., ¶ 15.) While the Elections Clause “was not adopted to diminish a State’s authority to determine its own lawmaking processes,” it does hold states accountable to their chosen processes in regulating federal elections. *Ariz. St. Leg.*, 135 S.Ct. at 2677, 2668.

**C. Georgia Law Governing the Handling of Absentee Ballots.**

The Georgia Legislature established a clear an efficient process for handling absentee ballots. To the extent that there is any change in that process, that change must, under Article I, Section 4 of the Constitution, be prescribed by the Georgia Legislature. (*See* Compl., ¶¶ 17-18.)

The Georgia Legislature instructed county registrars and clerks (the “County Officials”) regarding the handling of absentee ballots in O.C.G.A. §§ 21-2-386(a)(1)(B), 21-2-380.1. (*See* Compl., ¶ 19.) 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...

O.C.G.A. § 21-2-386(a)(1)(B) (emphasis added); (*see* Compl., ¶ 20).

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"). *See* O.C.G.A. § 21-2-386(a)(1)(C); (Compl., ¶ 22.) 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)(1)(C) (emphasis added); (*see* Compl., ¶ 23). The Georgia Legislature clearly contemplated the use of written notification by the county registrar or clerk in notifying the elector of the rejection. (*See* Compl., ¶ 24.)

**D. Defendants' Unauthorized Actions to Alter the Georgia Election Code and the Processing of Defective Absentee Ballots.**

In March 2020, Secretary Raffensperger, and the State Election Board, who

administer the state elections (collectively 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 (the “Democrat Agencies”), *setting forth different standards to be followed by County Officials in processing absentee ballots in Georgia.*<sup>2</sup> (See Compl., ¶¶ 25-26.) Although Secretary Raffensperger is authorized to promulgate rules and regulations that are “conducive to the fair, legal, and orderly conduct of primaries and elections,” all such rules and regulations must be “consistent with law.” O.C.G.A. § 21-2-31(2); (see Compl., ¶ 28).

Under the Litigation Settlement, the Administrators agreed to change the statutorily-prescribed process of handling absentee ballots in a manner that was not consistent with the laws promulgated by the Georgia Legislature. (See Compl., ¶ 28.) The Litigation Settlement provides that the Secretary of State would issue an “Official Election Bulletin” to County Officials overriding the prescribed statutory procedures. The unauthorized Litigation Settlement procedure, set forth below, is more cumbersome, and makes it much more difficult to follow the statute

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<sup>2</sup> See *Democratic Party of Georgia, Inc., et al. v. Raffensperger, et al.*, Civil Action File No. 1:19-cv-05028-WMR, United States District Court for the Northern District of Georgia, Atlanta Division, Doc. 56-1. A true and correct copy of the Litigation Settlement is attached hereto and incorporated herein as **Exhibit A**.

with respect to defective absentee ballots. (See Compl., ¶¶ 30-32.)

Under the Litigation Settlement, the following language added to the pressures and complexity of processing defective absentee ballots, making it less likely that they would be identified or, if identified, processed for rejection:

County registrars and absentee ballot clerks ***are required***, upon receipt of each mail-in absentee ballot, to compare the signature or make of the elector on the mail-in absentee ballot envelope with the signatures or marks in eNet and on the application for the mail-in absentee ballot. If the signature does not appear to be valid, registrars and clerks are required to follow the procedure set forth in O.C.G.A. § 21-2-386(a)(1)(C). When reviewing an elector's signature on the mail-in absentee ballot envelope, the registrar or clerk must compare the signature on the mail-in absentee ballot envelope to each signature contained in such elector's voter registration record in eNet and the elector's signature on the application for the mail-in absentee ballot. ***If the registrar or absentee ballot clerk determines that the voter's signature on the mail-in absentee ballot envelope does not match any of the voter's signatures on file in eNet or on the absentee ballot application, the registrar or absentee ballot clerk must seek review from two other registrars, deputy registrars, or absentee ballot clerks. A mail-in absentee ballot shall not be rejected unless a majority of the registrars, deputy registrars, or absentee ballot clerks reviewing the signature agree that the signature does not match any of the voter's signatures on file in eNet or on the absentee ballot application. If a determination is made that the elector's signature on the mail-in absentee ballot envelope does not match any of the voter's signatures on file in eNet or on the absentee ballot application, the registrar or absentee ballot clerk shall write the names of the three elections officials who conducted the signature review across the face of the absentee ballot envelope, which shall be in addition to writing "Rejected" and the reason for the rejection as required under O.C.G.A. § 21-2-386(a)(1)(C).*** Then, the registrar or absentee ballot clerk shall commence the notification procedure set forth in O.C.G.A. § 21-2-386(a)(1)(C) and State Election Board Rule

183-1-14-.13.

(*See* Compl., ¶ 33; *see* Ex. A, Litigation Settlement, p. 3-4, ¶ 3, “Signature Match” (emphasis added).)

The underlined language above is not consistent with the statute adopted by the Georgia Legislature. (*See* Compl., ¶ 34.) First, the Litigation Settlement overrides the clear statutory authorities granted to County Officials individually and forces them to form a committee of three if any one official believes that an absentee ballot is a defective absentee ballot. (*See* Compl., ¶ 35.) Such a procedure creates a cumbersome bureaucratic procedure to be followed with each defective absentee ballot – and makes it likely that such ballots will simply not be identified by the County Officials. (*See id.*, ¶ 36.)

Second, the Litigation Settlement allows a County Official to compare signatures in ways not permitted by the statutory structure created by the Georgia Legislature. (*See id.*, ¶ 37.) 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. § 21-2-381(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...”); (*see* Compl.,

¶ 38.) Under O.C.G.A. § 21-2-220(c), the elector must present identification, but need not submit identification if the electors submit with their application information such that the County Officials are able to match the elector's information with the state database, generally referred to as the eNet system. (*See* Compl., ¶ 39.) The system for identifying absentee ballots was carefully constructed by the Georgia Legislature to ensure that electors were identified by acceptable identification, but at some point in the process, the Georgia Legislature mandated the system whereby the elector be identified for each absentee ballot. (*See* Compl., ¶ 40.) Under the Litigation Settlement, any determination of a signature mismatch would lead to the cumbersome process described in the settlement, which was not intended by the Georgia Legislature, which authorized those decisions to be made by single election officials. (*See id.*, ¶ 41.) The Georgia Legislature also provided for the opportunity to cure (again, different from the opportunity to cure in the Litigation Settlement), but did not allocate funds for three County Officials for every mismatch decision. (*See id.*, ¶ 42.)

Finally, under paragraph 4 of the Litigation Settlement, the Administrators delegated their responsibilities for determining when there was a signature mismatch by considering in good faith “additional guidance and training materials” drafted by the “handwriting and signature review expert” of the Democrat

Agencies. (*See* Compl., ¶ 47; *see* Ex. A, Litigation Settlement, p. 4, ¶ 4, “Consideration of Additional Guidance for Signature Matching.”) Allowing a single political party to write rules for reviewing signatures is not “conducive to the fair...conduct of primaries and elections” or “consistent with law” under O.C.G.A. § 21-2-31. (*See* Compl., ¶ 48.)

In short, the Litigation Settlement by itself has created confusion, misplaced incentives, and undermined the confidence of the voters of the State of Georgia in the electoral system. (*See* Compl., ¶ 49.) Neither it nor any of the activities spawned by it were authorized by the Georgia Legislature, as required by the United States Constitution. (*See* Compl., ¶ 50.)

**E. The November 3, 2020 Election and “Full Hand Recount.”**

According to Secretary Raffensperger, in the November 3, 2020 general election: (1) in the presidential race, 2,457,880 votes were cast for President Donald J. Trump, and 2,472,002 for Joseph R. Biden; (2) in one U.S. Senate race, 2,458,665 votes were cast for Senator David A. Perdue, and 2,372,086 for Jon Ossoff; and (3) in the special election for the other of Georgia’s U.S. Senators, 1,271,106 votes were cast for Senator Kelly Loeffler, and 1,615,402 for Reverend Raphael Warnock. (*See* Compl., ¶¶ 52-54.) A run-off election for the U.S. Senators will occur on January 5, 2021. (*See id.*, ¶¶ 53-54.)

Secretary Raffensperger directed a “full [H]and [R]ecount” of all ballots in the State of Georgia to be completed by Wednesday, November 18, 2020. (*See* Compl., ¶ 55.) 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... 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.

(*See* Compl., ¶ 56 (emphasis added).)

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.<sup>3</sup> (*See* Compl., ¶ 57; Ex. B, Coleman Aff., ¶ 2; Ex. C, Diedrich Aff., ¶ 2.) Non-party Susan Voyles is a poll

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<sup>3</sup> Attached hereto and incorporated herein as **Exhibits B and C**, respectively, are true and correct copies of (1) the Affidavit of Amanda Coleman (the “Coleman Affidavit”), and (2) the Affidavit of Maria Diedrich (the “Diedrich Affidavit”).

manager for Fulton County and participated in the Hand Recount as an auditor.<sup>4</sup> (See Ex. D, Voyles Aff., ¶ 2.)

The Affidavits set forth various improprieties and improper handling of ballots by County Officials and their employees that were personally observed while monitoring the Hand Recount. (See Compl., ¶ 58; Ex. B, Coleman Aff., ¶¶ 3-10; Ex. C, Diedrich Aff., ¶¶ 4-14; Ex. D, Voyles Aff., ¶¶ 4-28.) For example, Ms. Coleman was directed to arrive at the Hand Recount between 8:00 a.m. and 9:00 a.m. on November 15, 2020, and arrived at 9:00 a.m. (See Ex. B, Coleman Aff., ¶¶ 3-4.) As she arrived, Ms. Coleman was informed by a large crowd that “they had ‘just finished’ the hand recount.” (See *id.*, ¶ 5.)

Ms. Diedrich arrived at the Hand Recount at 8:00 a.m. on November 15, 2020. (See Compl., ¶ 60; Ex. C, Diedrich Aff., ¶ 4.) Ms. Diedrich reports that, “By 9:15 a.m., officials announced that voting was complete and sent everyone home... The officials announced that they had counted all the absentee [ballots] on November 14 at night and they were already boxed up.” (See *id.*, ¶¶ 4-5.) As a result of her observations of the Hand Recount as a Republican Party monitor, Ms.

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<sup>4</sup> Attached hereto and incorporated herein as **Exhibit D** is the Affidavit of Susan Voyles (the “Voyles Affidavit”). Further, attached hereto and incorporated herein as **Exhibits E through M and R through U** are ten (10) additional affidavits of individuals who personally observed the irregularities occurring during the Hand Recount and the Georgia election process. Together with the Coleman, Diedrich, and Voyles Affidavits, these are collectively referred to as the “Affidavits.”

Diedrich declared, “There had been no meaningful way to review or audit any activity” at the Hand Recount. (*See* Compl., ¶ 61; Ex. C, Diedrich Aff., ¶ 14.) Ms. Coleman likewise declared, “There was no way to tell if any counting was accurate or if the activity was proper.” (*See* Compl., ¶ 62; Ex. B, Coleman Aff., ¶ 10.) Ms. Voyles, a Hand Recount auditor, observed numerous irregularities, including a batch of “pristine” ballots that appeared to be machine-marked, with the vast majority of those ballots being votes for Joseph Biden. (*See* Ex. D, Voyles Aff., ¶¶ 12-16.) 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 ballots.<sup>5</sup> (*See* Compl., ¶ 63.)

### **III. ARGUMENT AND CITATION OF AUTHORITIES.**

#### **A. The Standard for Relief.**

The United States Supreme Court summarized the test for the granting of a

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<sup>5</sup> Additional areas of investigation are underway regarding the legitimacy and validity of Georgia’s election results, as evidenced by: (1) the redacted Declaration dated November 15, 2020, attached hereto and incorporated herein as **Exhibit N** (the “Redacted Declaration”); (2) the Declaration of Christos A. Makridis dated November 16, 2020, attached hereto and incorporated herein as **Exhibit O** (the “Makridis Declaration”); and (3) the article entitled “Ballot-Marking Devices Cannot Ensure the Will of the Voters,” published in the *Election Law Journal* on November 3, 2020, a true and correct copy of which is attached hereto and incorporated herein as **Exhibit P** (the “Ballot Marking Devices Failure Study”); *see generally* the Affidavit of Russell James Ramsland, Jr., attached hereto and incorporated herein as **Exhibit Q**.

preliminary injunction in *Winter v. NRDC, Inc.*, 555 U.S. 7, 20 (2008):

A plaintiff seeking a preliminary injunction must establish that he is likely to succeed on the merits, that he is likely to suffer irreparable harm in the absence of preliminary relief, that the balance of equities tips in his favor, and that an injunction is in the public interest.

*See also Alabama v. U.S. Army Corps of Eng's*, 424 F.3d 1117, 1131 (11th Cir. 2005). These are not rigid requirements to be applied by rote. “The essence of equity jurisdiction has been the power of the Chancellor to do equity and to mold each decree to the necessities of the particular case. Flexibility rather than rigidity has distinguished it.” *Weinberger v. Romero-Barcelo*, 456 U.S. 305, 312 (1982). “[T]he granting of [a] preliminary injunction rests in the sound discretion of the district court.” *Harris Corp. v. Nat’l Iranian Radio & Television*, 691 F.2d 1344, 1354 (11th Cir. 1982).

“[A] preliminary injunction is customarily granted on the basis of procedures that are less formal and evidence that is less complete than in a trial on the merits.” *Univ. of Texas v. Camenisch*, 451 U.S. 390, 395 (1981); *Levi Strauss & Co. v. Sunrise Int’l Trading, Inc.*, 51 F.3d 982, 985 (11th Cir. 1994) (at the “preliminary injunction stage, a district court may rely on affidavits and hearsay materials which would not be admissible evidence for a permanent injunction”).

**B. This Court Should Enter Emergency Injunctive Relief.**

Plaintiff demonstrates herein all four elements for equitable relief. “When

the state legislature vests the right to vote for President in its people, the right to vote *as the legislature has prescribed is fundamental*; and one source of its fundamental nature lies in the equal weight accorded to each vote and the equal dignity owed to each voter.” *Bush v. Gore*, 531 U.S. 98, 104 (2000) (emphasis added). The evidence here shows not only that Defendants failed to administer the November 3, 2020 election and Hand Recount in compliance with the manner prescribed by the Georgia Legislature, but also that Defendants violated Plaintiff’s equal protection and due process rights. Unless Defendants are enjoined from certifying the results of the election, Plaintiff will be left with no remedy because Georgia’s electoral votes for President will not be awarded to the proper candidate.

**1. Plaintiff has a substantial likelihood of success.**

Plaintiff has made a credible showing that Defendants’ intentional actions jeopardized the rights of Georgia citizens to select their leaders under the process set out by the Georgia Legislature. Defendants’ conduct violated Plaintiff’s constitutional rights in at least three separate ways.

**a. Defendants violated the Equal Protection Clause.**

When deciding a constitutional challenge to state election laws, the flexible standard outlined in *Anderson v. Celebrezze*, 460 U.S. 780 (1983) and *Burdick v. Takushi*, 504 U.S. 428 (1992) applies. Under *Anderson* and *Burdick*, courts must

“weigh the character and magnitude of the burden the State’s rule imposes on those rights against the interests the State contends justify that burden, and consider the extent to which the State’s concerns make the burden necessary.” *Timmons v. Twin Cities Area New Party*, 520 U.S. 351, 358 (1997) (citations and quotations omitted). “[E]ven when a law imposes only a slight burden on the right to vote, relevant and legitimate interests of sufficient weight still must justify that burden.” *Democratic Exec. Comm. of Fla. v. Lee*, 915 F.3d 1312, 1318-19 (11th Cir. 2019).

“To establish an undue burden on the right to vote under the *Anderson-Burdick* test, Plaintiffs need not demonstrate discriminatory intent behind the signature-match scheme or the notice provisions because we are considering the constitutionality of a generalized burden on the fundamental right to vote, for which we apply the *Anderson-Burdick* balancing test instead of a traditional equal-protection inquiry.” *Lee*, 915 F.3d at 1319.

Plaintiff’s equal protection claim is straightforward: states may not, by arbitrary action or other unreasonable impairment, burden a citizen’s right to vote. *See Baker v. Carr*, 369 U.S. 186, 208 (1962) (“citizen’s right to a vote free of arbitrary impairment by state action has been judicially recognized as a right secured by the Constitution”). “Having once granted the right to vote on equal terms, the State may not, by later arbitrary and disparate treatment, value on

person's vote over that of another.” *Bush*, 531 U.S. at 104-05. Among other things, this requires “specific rules designed to ensure uniform treatment” in order to prevent “arbitrary and disparate treatment to voters.” *Id.* at 106-07; *see also Dunn v. Bloomstein*, 405 U.S. 330, 336 (1972) (providing that each citizen “has a constitutionally protected right to participate in elections on an equal basis with other citizens in the jurisdiction”).

“The right to vote extends to all phases of the voting process, from being permitted to place one’s vote in the ballot box to having that vote actually counted. Thus, the right to vote applies equally to the initial allocation of the franchise as well as the manner of its exercise. Once the right to vote is granted, a state may not draw distinctions between voters that are inconsistent with the guarantees of the Fourteenth Amendment’s equal protection clause.” *Pierce v. Allegheny County Bd. of Elections*, 324 F.Supp.2d 684, 695 (W.D. Pa. 2003) (citations and quotations omitted). “[T]reating voters differently” thus “violate[s] the Equal Protection Clause” when the disparate treatment is the result of arbitrary, ad hoc processes. *Charfauros v. Bd. of Elections*, 249 F.3d 941, 954 (9th Cir. 2001). Indeed, a “minimum requirement for non-arbitrary treatment of voters [is] necessary to secure the fundamental right [to vote].” *Bush*, 531 U.S. at 105.

Defendants are not part of the Georgia Legislature and cannot exercise

legislative power to enact rules or regulations regarding the handling of defective absentee ballots that are contrary to the Georgia Election Code. By entering the Litigation Settlement, however, Defendants unilaterally and without authority altered the Georgia Election Code and the procedure for processing defective absentee ballots. The result is that absentee ballots have been processed differently by County Officials than the process created by the Georgia Legislature and set forth in the Georgia Election Code. Further, allowing a single political party to write rules for reviewing signatures, as paragraph 4 of the Litigation Settlement provides, is not “conducive to the fair...conduct of primaries and elections” or “consistent with law” under O.C.G.A. § 21-2-31.

The rules and regulations set forth in the Litigation Settlement created an arbitrary, disparate, and ad hoc process for processing defective absentee ballots, and for determining which of such ballots should be “rejected,” contrary to Georgia law. *See* O.C.G.A. § 21-2-386; (*see also* Ex. A, Litigation Settlement, p. 3-4, ¶ 3, “Signature Match”). This disparate treatment is not justified by, and is not necessary to promote, any substantial or compelling state interest that cannot be accomplished by other, less restrictive means. As such, there is a substantial likelihood that Plaintiff will be successful in demonstrating that he has been harmed by Defendants’ violations of his equal protection rights, and an injunction

should be issued to temporarily stay the certification of Georgia's election results.

**b. *Defendants violated the Electors Clause.***

Defendants further violated the Constitution by improperly requiring the use of a system for processing defective absentee ballots that is different from the procedures prescribed by the Georgia Legislature. Article II of the Constitution provides that the rules for presidential elections be established by each state "in such Manner as the Legislature thereof may direct." U.S. Const. Art. II § 1, cl. 2. Where, as here, the Georgia Legislature has enacted a specific election code, "the clearly expressed intent of the legislature must prevail." *Bush*, 531 U.S. at 120 (Rehnquist, C.J., concurring).

The Georgia Legislature provided the steps to be followed by County Officials with respect to defective absentee ballots, and the repeated use of the word "shall" in that section demonstrates the Georgia Legislature's intent that the requirements are mandatory, not discretionary. *See* O.C.G.A. § 21-2-386(a)(1)(C). By requiring County Officials to utilize the procedure set forth in the Litigation Settlement, however, Defendants altered the otherwise statutorily mandated procedure contrary to the Georgia Election Code and the United States Constitution. *See* U.S. Const. Art. II § 1, cl. 2; O.C.G.A. § 21-2-31(2); (*see also* Ex. A, Litigation Settlement, p. 3-4, ¶ 3, "Signature Match"). As such, Georgia's

results for the November 3, 2020 election are tainted with the improper handling and tabulation of defective absentee ballots in violation of the Electors and Election Clauses of the Constitution. Thus, Plaintiff has a substantial likelihood of success, and an emergency injunction should be issued to prevent the certification of any vote tabulation that includes improperly handled defective absentee ballots.

**c. *The Hand Recount was violated Due Process.***

Secretary Raffensperger announced that a “full [H]and [R]ecount” of Georgia’s November 3, 2020 election results would occur. (*See* Compl., ¶ 55.) For the full Hand Recount, “Political parties are allowed to designate a minimum of two monitors per county” in order to “watch the recount while standing close to the elections workers conducting the recount” and provide “an additional way to keep tabs on the process” to “ensure the recount is conducted fairly and securely.” (*See* Compl, ¶ 56.) The Georgia Election Code also sets forth the means in which a recount is to be conducted, and permits “each such party or body” to “send two representatives to be present at such recount.” O.C.G.A. § 21-2-495(a)-(b).

Having declared that a full hand recount of Georgia’s election results would occur, Secretary Raffensberger is required to comply with the procedures for the Hand Recount. The Affidavits attached hereto, however, demonstrate that the Hand Recount has not been conducted in a manner consistent with the Georgia Election

Code. Monitors have been denied the opportunity to be present throughout the entire Hand Recount, and when allowed to be present, they were denied the opportunity to observe the Hand Recount in any meaningful way. Further, monitors have been denied the ability to seek redress of the irregularities they have observed during their limited ability to monitor the Hand Recount.

The failure of Defendants to ensure that the Hand Recount is conducted fairly and in compliance with the Georgia Election Code is a deprivation of the Fourteenth Amendment's protection of the right to vote from conduct by state officials which seriously undermines the fundamental fairness of the electoral process. *See Marks v. Stinson*, 19 F.3d 873, 889 (3d Cir. 1994). Defendants have a duty to guard against the deprivation of the right to vote and ensure that the public has meaningful access to observe and monitor the electoral process.

Rather than heeding these mandates and duties, however, Defendants intentionally and/or arbitrarily and capriciously denied election monitors meaningful access to observe and monitor the electoral process. Defendants' failures constitute a deprivation of Plaintiff's due process rights and result in an election result that is tainted with constitutional violations and unfairness. As such, this Court should enjoin Defendants from certifying Georgia's election results, and should require that the Hand Recount be reperformed in a manner

consistent with the Georgia Election Code.

**2. Plaintiff will suffer irreparable harm.**

The irreparable nature of the harm to Plaintiff is apparent. “It is well-settled that an infringement on the fundamental right to vote amounts in an irreparable injury.” *New Ga. Project v. Raffensperger*, 2020 U.S. Dist. LEXIS 159901, at \*86 (N.D. Ga. Aug. 31, 2020). If the Georgia vote count, including defective absentee ballots that were not processed according to the Georgia Election Code, is certified, and if the Hand Recount is not properly reconducted, then Georgia’s election results are improper and suspect, resulting in Georgia’s electoral college votes going to Joseph R. Biden contrary to the votes of the majority of Georgia qualified electors. Plainly, there is no adequate remedy at law if this occurs.

**3. The Balance of Harms and Public Interest.**

The remaining two factors for the preliminary injunction test, “harm to the opposing party and weighing the public interest merge when the Government is the opposing party.” *New Ga. Project*, 2020 U.S. Dist. LEXIS 159901, at \*86 (*quoting Nken v. Holder*, 556 U.S. 418, 435 (2009)) (alterations and punctuation omitted). Plaintiff seeks a stay in the certification of Georgia’s election results to preserve the status quo while this case proceeds. Defendants will bear little harm so long as they certify the Georgia election results by November 20, 2020, the

federal safe-harbor date. If Defendants prevail by or before that date, the same electors will be appointed with ample time to vote in the Electoral College. If Plaintiff prevails, it can only be because Defendants had no legitimate interest in certifying a constitutionally flawed election outcome. Either way, Defendants will not suffer harm from a slight delay.

By contrast, Plaintiff (and the citizens of Georgia) could lose his opportunity for meaningful relief entirely if the vote total is certified, since it is not clear what remedies would remain after that point. *See New Ga. Project*, 2020 U.S. Dis. LEXIS 15901, at \*86-87 (concluding that movant satisfied balance of harms/public interest factors, as “Plaintiffs will be forever harmed if they are unconstitutionally deprived of their right to vote”). The low costs to Defendants and high potential harm to Plaintiff make this a case with substantial net harm an injunction can prevent. *See Reilly v. City of Harrisburg*, 858 F.3d 173, 179 (3d Cir. 2017).

Moreover, the public will be served by this injunction. “[T]he public has a strong interest in exercising the fundamental political right to vote. That interest is best served by favoring enfranchisement and ensuring that qualified voters’ exercise of their right to vote is successful. The public interest therefore favors permitting as many qualified voters to vote as possible,” and having those votes properly processed and tallied pursuant to Georgia law. *Obama for Am. v. Husted*,

697 F.3d 423, 436-37 (2012) (citations and quotations omitted).

WHEREFORE, Plaintiff prays that this Court enter an emergency injunction as to the following:

1. Prohibiting the certification of the results of the 2020 general election in Georgia on a statewide basis; or
2. Alternatively, prohibiting the certification of said results which include the tabulation of defective absentee ballots; and
3. Declaring that:
  - a. Any recount of the November 3, 2020 elections, including but not limited to the Hand Recount, must be reperformed in a manner consistent with the Georgia Election Code;
  - b. Monitors designated by the Republican Party have the right to be present to meaningfully observe all election activity, from the receipt of a ballot to the entry or tabulation of the resulting vote, as to the Hand Recount, any reconducting of the Hand Recount, and the January 5, 2021 run-off election;
  - c. That Plaintiff and the Republican Party by given at least 24 hours notice prior to any and all election activity;
  - d. That all ballots in Georgia must be read by two persons employed by the County Officials, with said readings being overseen by Republican Party-

designated monitors;

e. That the Republican Party immediately receive certified copies of all ballot envelopes and requests for absentee ballots received by Defendants, and further, that the Republican Party has the right to compare voter or application signatures on ballot envelopes and requests for absentee ballots with eNet, particularly as to the January 5, 2021 run-off election;

f. That for the January 5, 2021 run-off election, the Republican Party has the right to have absentee ballot watchers/monitors present at all signature verification processes, from the receipt of the request for an absentee ballot to the opening and processing of the same; and

4. Any and other such further relief that this Court deems equitable and just.

Respectfully submitted this 17th day of November, 2020.

**SMITH & LISS, LLC**

/s/  
Ray S. Smith, III  
Georgia Bar No. 662555  
*Counsel for Plaintiff*

Five Concourse Parkway  
Suite 2600  
Atlanta, Georgia 30328  
(404) 760-6000  
rsmith@smithliss.com

designated monitors;

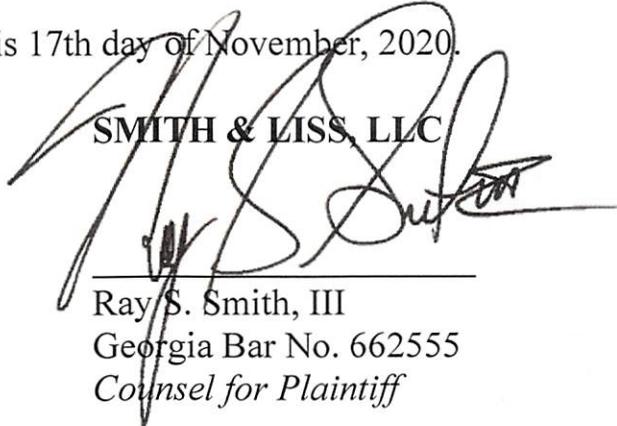
e. That the Republican Party immediately receive certified copies of all ballot envelopes and requests for absentee ballots received by Defendants, and further, that the Republican Party has the right to compare voter or application signatures on ballot envelopes and requests for absentee ballots with eNet, particularly as to the January 5, 2021 run-off election;

f. That for the January 5, 2021 run-off election, the Republican Party has the right to have absentee ballot watchers/monitors present at all signature verification processes, from the receipt of the request for an absentee ballot to the opening and processing of the same; and

4. Any and other such further relief that this Court deems equitable and just.

Respectfully submitted this 17th day of November, 2020.

SMITH & LISS, LLC



---

Ray S. Smith, III  
Georgia Bar No. 662555  
*Counsel for Plaintiff*

Five Concourse Parkway  
Suite 2600  
Atlanta, Georgia 30328  
(404) 760-6000  
rsmith@smithliss.com

**CERTIFICATE OF COMPLIANCE**

The undersigned counsel certifies that the foregoing has been prepared in Times New Roman (14 point) font, as required by the Court in Local Rule 5.1 (B).

Respectfully submitted this 16th day of November, 2020.

**SMITH & LISS, LLC**

/s/

  
Ray S. Smith, III  
Georgia Bar No. 662555  
*Counsel for Plaintiff*

Five Concourse Parkway  
Suite 2600  
Atlanta, Georgia 30328  
(404) 760-6000  
rsmith@smithliss.com

**CERTIFICATE OF SERVICE**

I hereby certify that I have this day caused the foregoing and all exhibits and attachments thereto in the above-captioned matter to be filed with the United States District Court for the Northern District of Georgia, Atlanta Division, via the Court's CM-ECF system. I also hereby certify that I caused the foregoing and all exhibits and attachments thereto in the above captioned matter to be served, via FedEx and email, upon:

Secretary of State Brad Raffensperger  
214 State Capitol  
Atlanta, Georgia 30334  
[brad@sos.ga.gov](mailto:brad@sos.ga.gov)  
[soscontact@sos.ga.gov](mailto:soscontact@sos.ga.gov)

Rebecca N. Sullivan  
Georgia Department of Administrative Services  
200 Piedmont Avenue SE  
Suite 1804, West Tower  
Atlanta, Georgia 30334-9010  
[rebecca.sullivan@doas.ga.gov](mailto:rebecca.sullivan@doas.ga.gov)

David J. Worley  
Evangelista Worley LLC  
500 Sugar Mill Road  
Suite 245A  
Atlanta, Georgia 30350  
[david@ewlawllc.com](mailto:david@ewlawllc.com)

Matthew Mashburn  
Aldridge Pite, LLP  
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Suite 500  
Atlanta, Georgia 30305  
[mmashburn@aldridgepite.com](mailto:mmashburn@aldridgepite.com)

Anh Le  
Harley, Rowe & Fowler, P.C.  
2700 Cumberland Parkway  
Suite 525  
Atlanta, Georgia 30339  
[ale@hrfllegal.com](mailto:ale@hrfllegal.com)

This 16th day of November, 2020.

**SMITH & LISS, LLC**

  
/s/ Ray S. Smith, III  
Georgia Bar No. 662555  
*Counsel for Plaintiff*

Five Concourse Parkway  
Suite 2600  
Atlanta, Georgia 30328  
(404) 760-6000  
[rsmith@smithliss.com](mailto:rsmith@smithliss.com)

## **COMPROMISE SETTLEMENT AGREEMENT AND RELEASE**

This **Compromise Settlement Agreement and Release** (“Agreement”) is made and entered into by and between the Democratic Party of Georgia, Inc. (“DPG”), the DSCC, and the DCCC (collectively, the “Political Party Committees”), on one side, and Brad Raffensperger, Rebecca N. Sullivan, David J. Worley, Seth Harp, and Anh Le (collectively, “State Defendants”), on the other side. The parties to this Agreement may be referred to individually as a “Party” or collectively as the “Parties.” The Agreement will take effect when each and every Party has signed it, as of the date of the last signature (the “Effective Date”).

**WHEREAS**, in the lawsuit styled as *Democratic Party of Georgia, et al. v. Raffensperger, et al.*, Civil Action File No. 1:19-cv-5028-WMR (the “Lawsuit”), the Political Party Committees have asserted claims in their Amended Complaint [Doc. 30] that the State Defendants’ (i) absentee ballot signature matching procedure, (ii) notification process when an absentee ballot is rejected for any reason, and (iii) procedure for curing a rejected absentee ballot, violate the First and Fourteenth Amendments to the United States Constitution by unduly burdening the right to vote, subjecting similarly situated voters to disparate treatment, and failing to afford Georgia voters due process (the “Claims”), which the State Defendants deny;

**WHEREAS**, the State Defendants, in their capacity as members of the State Election Board, adopted on February 28, 2020 Rule 183-1-14-.13, which sets forth specific and standard notification procedures that all counties must follow after rejection of a timely mail-in absentee ballot;

**WHEREAS**, the State Defendants have a Motion to Dismiss [Doc. 45] pending before the Court, which sets forth various grounds for dismissal of the Amended Complaint, including mootness in light of the State Election Board’s promulgation subsequent to adoption on February 28, 2020 of Rule 183-1-14-.13, which Motion the Political Party Committees deny is meritorious;

**WHEREAS**, all Parties desire to compromise and settle all disputed issues and claims arising from the Lawsuit, finally and fully, without admission of liability, having agreed on the procedures and guidance set forth below with respect to the signature matching and absentee ballot rejection notification and cure procedures; and

**WHEREAS**, by entering into this Agreement, the Political Party Committees do not concede that the challenged laws and procedures are constitutional, and

similarly, the State Defendants do not concede that the challenged laws and procedures are unconstitutional.

**NOW THEREFORE**, for and in consideration of the promises and covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties do hereby agree as follows:

**1. Dismissal.** Within five (5) business days of March 22, 2020, the effective date of the Prompt Notification of Absentee Ballot Rejection rule specified in paragraph 2(a), the Political Party Committees shall dismiss the Lawsuit with prejudice as to the State Defendants.

**2. Prompt Notification of Absentee Ballot Rejection.**

(a) The State Defendants, in their capacity as members of the State Election Board, agree to promulgate and enforce, in accordance with the Georgia Administrative Procedures Act and State Election Board policy, the following State Election Board Rule 183-1-14-.13 of the Georgia Rules and Regulations:

When a timely submitted absentee ballot is rejected, the board of registrars or absentee ballot clerk shall send the elector notice of such rejection and opportunity to cure, as provided by O.C.G.A. § 21-2-386, by mailing written notice, and attempt to notify the elector by telephone and email if a telephone number or email is on the elector's voter registration record, no later than the close of business on the third business day after receiving the absentee ballot. However, for any timely submitted absentee ballot that is rejected on or after the second Friday prior to Election Day, the board of registrars or absentee ballot clerk shall send the elector notice of such rejection and opportunity to cure, as provided by O.C.G.A. § 21-2-386, by mailing written notice, and attempt to notify the elector by telephone and email if a telephone number or email is on the elector's voter registration record, no later than close of business on the next business day.

Ga. R. & Reg. § 183-1-14-.13 Prompt Notification of Absentee Ballot Rejection

(b) Unless otherwise required by law, State Defendants agree that any amendments to Rule 183-1-14-.13 will be made in good faith in the spirit of ensuring that voters are notified of rejection of their absentee ballots with ample time to cure

their ballots. The Political Party Committees agree that the State Election Board's proposed amendment to Rule 183-1-14-.13 to use contact information on absentee ballot applications to notify the voter fits within that spirit.

### **3. Signature Match.**

(a) Secretary of State Raffensperger, in his official capacity as Secretary of State, agrees to issue an Official Election Bulletin containing the following procedure applicable to the review of signatures on absentee ballot envelopes by county elections officials and to incorporate the procedure below in training materials regarding the review of absentee ballot signatures for county registrars:

County registrars and absentee ballot clerks are required, upon receipt of each mail-in absentee ballot, to compare the signature or mark of the elector on the mail-in absentee ballot envelope with the signatures or marks in eNet and on the application for the mail-in absentee ballot. If the signature does not appear to be valid, registrars and clerks are required to follow the procedure set forth in O.C.G.A. § 21-2-386(a)(1)(C). When reviewing an elector's signature on the mail-in absentee ballot envelope, the registrar or clerk must compare the signature on the mail-in absentee ballot envelope to each signature contained in such elector's voter registration record in eNet and the elector's signature on the application for the mail-in absentee ballot. If the registrar or absentee ballot clerk determines that the voter's signature on the mail-in absentee ballot envelope does not match any of the voter's signatures on file in eNet or on the absentee ballot application, the registrar or absentee ballot clerk must seek review from two other registrars, deputy registrars, or absentee ballot clerks. A mail-in absentee ballot shall not be rejected unless a majority of the registrars, deputy registrars, or absentee ballot clerks reviewing the signature agree that the signature does not match any of the voter's signatures on file in eNet or on the absentee ballot application. If a determination is made that the elector's signature on the mail-in absentee ballot envelope does not match any of the voter's signatures on file in eNet or on the absentee ballot application, the registrar or absentee ballot clerk shall write the names of the three elections officials who conducted the signature review across the face of the absentee ballot envelope, which shall be in addition to writing "Rejected" and the reason for the rejection as required under OCGA 21-2-386(a)(1)(C). Then, the registrar or absentee ballot clerk shall

commence the notification procedure set forth in O.C.G.A. § 21-2-386(a)(1)(C) and State Election Board Rule 183-1-14-.13.

(b) The Parties agree that the guidance in paragraph 3(a) shall be issued in advance of all statewide elections in 2020, including the March 24, 2020 Presidential Primary Elections and the November 3, 2020 General Election.

**4. Consideration of Additional Guidance for Signature Matching.** The State Defendants agree to consider in good faith providing county registrars and absentee ballot clerks with additional guidance and training materials to follow when comparing voters' signatures that will be drafted by the Political Party Committees' handwriting and signature review expert.

**5. Attorneys' Fees and Expenses.** The Parties to this Agreement shall bear their own attorney's fees and costs incurred in bringing or defending this action, and no party shall be considered to be a prevailing party for the purpose of any law, statute, or regulation providing for the award or recovery of attorney's fees and/or costs.

**6. Release by The Political Party Committees.** The Political Party Committees, on behalf of themselves and their successors, affiliates, and representatives, release and forever discharge the State Defendants, and each of their successors and representatives, from the prompt notification of absentee ballot rejection and signature match claims and causes of action, whether legal or equitable, in the Lawsuit.

**7. No Admission of Liability.** It is understood and agreed by the Parties that this Agreement is a compromise and is being executed to settle a dispute. Nothing contained herein may be construed as an admission of liability on the part of any of the Parties.

**8. Authority to Bind; No Prior Assignment of Released Claims.** The Parties represent and warrant that they have full authority to enter into this Agreement and bind themselves to its terms.

**9. No Presumptions.** The Parties acknowledge that they have had input into the drafting of this Agreement or, alternatively, have had an opportunity to have input into the drafting of this Agreement. The Parties agree that this Agreement is and shall be deemed jointly drafted and written by all Parties to it, and it shall be interpreted fairly, reasonably, and not more strongly against one Party than the other.

Accordingly, if a dispute arises about the meaning, construction, or interpretation of this Agreement, no presumption will apply to construe the language of this Agreement for or against any Party.

**10. Knowing and Voluntary Agreement.** Each Party to this Agreement acknowledges that it is entering into this Agreement voluntarily and of its own free will and accord, and seeks to be bound hereunder. The Parties further acknowledge that they have retained their own legal counsel in this matter or have had the opportunity to retain legal counsel to review this Agreement.

**11. Choice of Law, Jurisdiction and Venue.** This Agreement will be construed in accordance with the laws of the State of Georgia. In the event of any dispute arising out of or in any way related to this Agreement, the Parties consent to the sole and exclusive jurisdiction of the state courts located in Fulton County, Georgia. The Parties waive any objection to jurisdiction and venue of those courts.

**12. Entire Agreement; Modification.** This Agreement sets forth the entire agreement between the Parties hereto, and fully supersedes any prior agreements or understandings between the Parties. The Parties acknowledge that they have not relied on any representations, promises, or agreements of any kind made to them in connection with their decision to accept this Agreement, except for those set forth in this Agreement.

**13. Counterparts.** This Agreement may be executed in counterparts which, taken together, will constitute one and the same Agreement and will be effective as of the date last set forth below, and signatures by facsimile and electronic mail will have the same effect as the originals.

**IN WITNESS WHEREOF**, the Parties have set their hands and seals to this instrument on the date set forth below.

Dated: March 6, 2020

/s/ Bruce V. Spiva

Marc E. Elias\*  
Bruce V. Spiva\*  
John Devaney\*  
Amanda R. Callais\*  
K'Shaani Smith\*  
Emily R. Brailey\*  
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*\*Admitted Pro Hac Vice*

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Adam M. Sparks  
Georgia Bar No. 341578  
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Telephone: (678) 701-9381  
Facsimile: (404) 856-3250

*Counsel for State Defendants*

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR., )

Plaintiff, )

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. )

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

**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

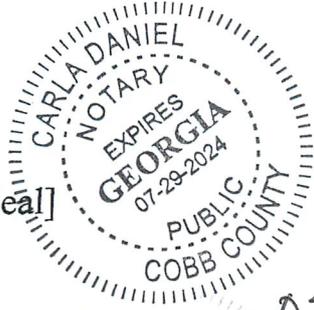
Amanda Coleman  
Amanda Coleman

STATE OF GEORGIA

COUNTY OF FULTON

Amanda Coleman, appeared before me, a Notary Public in and for the above jurisdiction, this 16<sup>th</sup> day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal]



Carla Daniel  
Notary Public

My Commission Expires 07-29-2024

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR., )  
 )  
 Plaintiff, )  
 )  
 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. )  
 )  
 \_\_\_\_\_ )

CIVIL ACTION  
FILE NO. \_\_\_\_\_

**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.

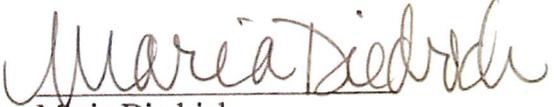
12. At 9:00 a.m., county officials announced that there were too many party monitors and asked the Republican watchers to gather and decide which 17 would be on the floor. There were only 2 paid Republican campaign workers and they tried to organize 17 from about 30 total personnel who had volunteered. 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

STATE OF GEORGIA

COUNTY OF FULTON

Maria Diedrich , appeared before me, a Notary Public in and for the above jurisdiction, this 16<sup>th</sup> day of November 2020, and after being duly sworn, made this Declaration, under oath.



  
Notary Public

My Commission Expires 07-29-2024

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR., )

Plaintiff, )

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. )

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

**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.

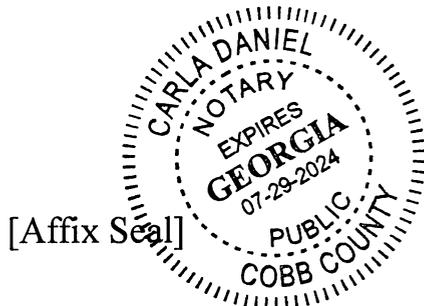
**[SIGNATURE AND OATH ON NEXT PAGE]**

I declare under penalty of perjury that the foregoing statements are true and correct

*Susan Voyles*  
Susan Voyles

STATE OF GEORGIA  
COUNTY OF FULTON

Susan Voyles, appeared before me, a Notary Public in and for the above jurisdiction, this 17<sup>th</sup> day of November 2020, and after being duly sworn, made this Declaration, under oath.



*Carla Daniel*  
Notary Public

My Commission Expires 07-29-2024

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR., )

Plaintiff, )

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. )

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

**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 cardboard 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 Observers 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 County’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

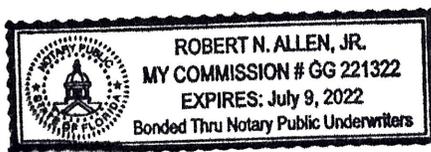
COUNTY OF PALM BEACH

Nicholas Zeher, appeared before me, a Notary Public in and for the above jurisdiction, this 17<sup>th</sup> day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal]

  
\_\_\_\_\_  
Notary Public

My Commission Expires \_\_\_\_\_



# Exhibit A



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

A handwritten signature in black ink, appearing to read "D. Shafer".

David J. Shafer  
Chairman

A handwritten signature in black ink, appearing to read "Michael Welsh".

Michael Welsh  
Secretary

# Exhibit B

# **Audit/Recount Monitor and Vote Review Panel Handout**

### Audit Observer Handout

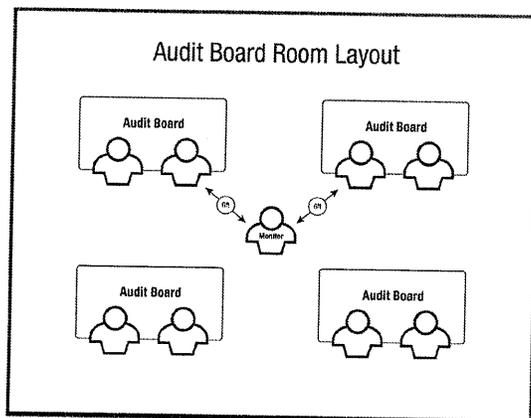
#### Arrival:

- 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

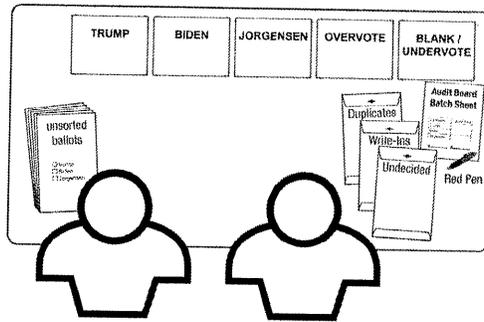
Delivered Vote Review Panel ballots (if any)

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**

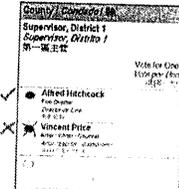
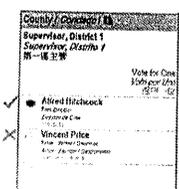
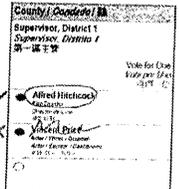
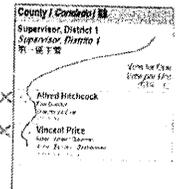
**Incident Report Form** (attached) and at: <https://gagop.org/auditreport/>



Common Adjudication Scenarios

**Common Adjudication Scenarios**

DOMINION VOTING

<p><b>OVERVOTES</b> With corrections from voters</p> 	<p><b>HESITATION MARKS</b></p> 	<p><b>MARKING ERRORS</b> Consistent patterns</p> 
	<p><b>STRAY MARKS IN TARGET AREAS</b></p> 	<p>Inconsistent patterns</p> 

# Exhibit C



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

A handwritten signature in black ink, appearing to read "David J. Shafer".

David J. Shafer  
Chairman

A handwritten signature in black ink, appearing to read "Michael Welsh".

Michael Welsh  
Secretary

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR., )

Plaintiff, )

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. )

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

**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]**

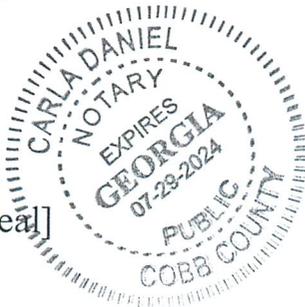
I declare under penalty of perjury that the foregoing statements are true and correct.

  
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

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR.,

Plaintiff,

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.

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

**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 17<sup>th</sup> day of November 2020, and after being duly sworn, made this Declaration, under oath.



  
Notary Public

My Commission Expires 07-29-2024

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR., )

Plaintiff, )

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. )

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

**AFFIDAVIT OF CONSETTA S. JOHNSON IN SUPPORT OF  
PLAINTIFF'S MOTION 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.

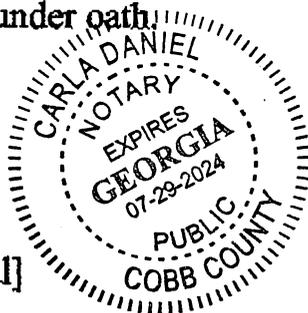
I declare under penalty of perjury that the foregoing statements are true and correct

*Consetta S. Johnson*  
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 17<sup>th</sup> day of November 2020, and after being duly sworn, made this Declaration, under oath.



[Affix Seal]

*Carla Daniel*  
Notary Public

My Commission Expires 07-29-2024

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR., )

Plaintiff, )

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. )

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

**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 17<sup>th</sup> day of November 2020, and after being duly sworn, made this Declaration, under oath.



\_\_\_\_\_  
Notary Public

My Commission Expires 07-29-2024

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR., )

Plaintiff, )

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. )

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

**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 16<sup>th</sup>. 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]**

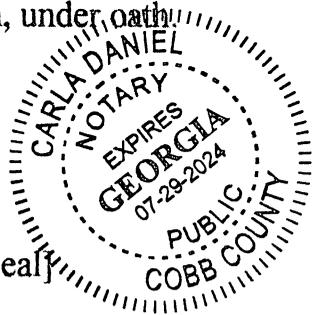
I declare under penalty of perjury that the foregoing statements are true and correct

  
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 17<sup>th</sup> day of November 2020, and after being duly sworn, made this

Declaration, under oath.



[Affix Seal]

  
Notary Public

My Commission Expires 07-29-2024

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR., )

Plaintiff, )

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. )

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

\_\_\_\_\_ )

**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]**

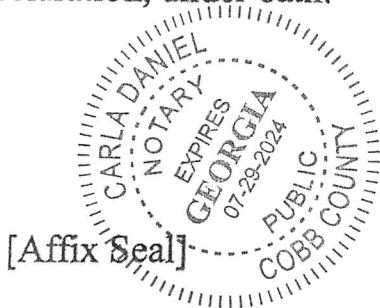
I declare under penalty of perjury that the foregoing statements are true and correct

  
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 17<sup>th</sup> day of November 2020, and after being duly sworn, made this Declaration, under oath.



  
Notary Public

My Commission Expires 07-29-2024

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR., )

Plaintiff, )

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. )

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

**AFFIDAVIT OF TIFFANY SAVAGE IN SUPPORT OF  
PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER**

I, Tiffany Savage, 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 Gwinnett County. My husband and I own two small businesses in Gwinnett 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 through 17.
3. I was assigned to be an official monitor at the location at Beauty P. Baldwin Voter Registrations and Elections Building in Lawrenceville. 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. In the course of monitoring on November 14, I noticed some major red flags that undermined the fairness of the process. I do not see these being addressed in a way that is fair and equitable.
5. Ballots were being grouped into batches. It was not clear for what purpose. They were not being counted, as far as I could tell. I do not know what training or instruction had been given to these groupers, but the activity seemed meaningless.
6. Envelopes from mail in ballots had been separated from the signatures on the absentee ballot eternal envelopes. Electors during in-person early voting or on Election Day were required to show identification; signature verification was not available for audit in the recount.

7. Batches of ballots were marked with discrepancies on post it notes. See picture on Annex 1. Ballots were placed in unmarked bins that are unattended or just placed randomly on a counter just lying around. There appeared to be little, if any, supervision, or control. I saw at least one open ballot box (container ABM5B/ 31148252). See picture on Annex 1.
8. Four hours after a shift change, at many stations (at least 4 that I could see), the counters were not counting ballots correctly. Instead of the “pass count” for dual control purposes, counters were opening ballot batches independently and “fast counting.”
9. I reported the fast counting, and announcement was made to cause the counters to use a confirmed process for reviewing and counting the ballots. Perhaps there had been some training, but it seemed inconsistent. But even after an announcement was made asking them to resume “pass counting.” they continued to batch and group “just get it over with.”
10. Unsecured, completed ballot boxes were left all day when they should have been secured by the (green) numbered lock tags. The security tags were being used to lock the bags of ballots, but they were lying around in the open and could have been used by anyone. See picture on Annex 1. There was no permanent processing of assigning a tag number to a bag, so every bag was

vulnerable to opening, tampering, and relocking at any point in time when the room was not being monitored.

11. The counters did not note the time verification on the machine-read voting ballots.

12. I overheard a poll official saying that damaged ballots were being or had been “duplicated.” I am not allowed to directly interact with a poll official, so I could not ask what that official meant by that statement. There were hundreds of damaged or voided ballots (which were all duplicated).

13. On November 15, 2020, the counting continued in the same haphazard way until 2:48 p.m., when counting was stopped because the laptops all “went down.” The official counting did not resume that day but at 5:00 p.m., the counters were dismissed due to “counter fatigue.”

14. Batches of ballots were sitting around unattended. The ballot boxes were locked with green security tags on the front but could be opened from the other side without cutting the green security tag. The boxes are not secured.

15. \*Gwinnett Election informed that the Green security tag numbers are not documented and maintained anywhere except on a Post-it note inside the box. The bag numbers are not kept in an independent location, so the ballots are subject to tampering. The tags can be cut, the ballot box opened, ballots can

be manipulated. And a new Post-it note can be placed inside the box with the new (not original) green security tag when the boxes are unmonitored.

16. The “24 hour camera feed” only shows ballot counters, not the voter review or “secured ballot boxes.” The 24 hour camera feed is closed off after hours and appears dark.

17. All officers, who work for sheriff office, left the building when the counters left. Yet persons with badges were exiting and entering the building and walking out with folders.

18. After hours, anyone with a key to the building can have access to the open room and this counting area.

19. I returned on November 16 and witnessed the same level of confusion as the 14<sup>th</sup> and 15<sup>th</sup>. On the 16<sup>th</sup>, we were not permitted in the counting area until 9:30. At 8:30, all poll workers were released (approximately 75% of all counters). The remaining counters did not appear to be aware of the rules, and even when instructed, continued to blatantly disregard the counting procedures.

20. The ballot box that had been left unsecured on November 14 was still unsecured two days later. Green security tags were cut and replacement tags were not being recorded properly.

21. Some ballot batch tally sheets have no number written at all in the Trump column but include numbers for Biden; I regarded those as not likely to be 100% Biden votes in a given batch, but just incomplete.
22. A laptop with access to the data entry system was left in the open area with the password for the wifi and the laptop on a Post-it note affixed to the laptop. When informed of this security breach, the supervisor simply said, "I know." The "secured ballot counting area" was wide open to many people, even some without a security badge.
23. One worker was entering numbers and writing on ballot sheets alone and out of sight of the security camera. When informed, the supervisor simply moved her to another table.
24. The ballot batch tally sheets that are then given to the data entry tables were marked in red pen. Red pens were left on the table, which would permit the auditors to correct the ballot batch tally sheets they were auditing.
25. On November 17, the lack of security, confusion, and hostility to Republican poll watchers continued. The supervisor placed a red line in tape across the floor and instructed the poll watchers to stand behind the gold tape. There was no way to see if the ballots were being read correctly. See picture on Annex 1.

26. We saw further instances of gross violations of the rules that were established to this recount. Auditors who were informed they had violated the rules did not change their behavior. There was no way to tell if any counting was accurate.

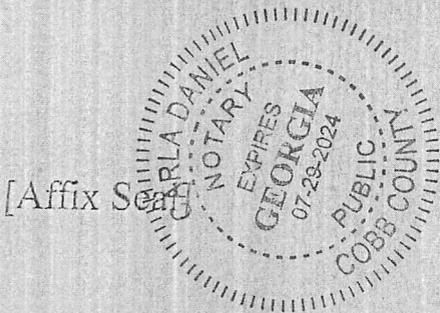
**[SIGNATURE AND OATH ON NEXT PAGE]**

I declare under penalty of perjury that the foregoing statements are true and correct

*Tiffany Savage*  
Tiffany Savage

STATE OF GEORGIA  
COUNTY OF GWINNETT

Tiffany Savage, appeared before me, a Notary Public in and for the above jurisdiction, this 16<sup>th</sup> day of November 2020, and after being duly sworn, made this Declaration, under oath.

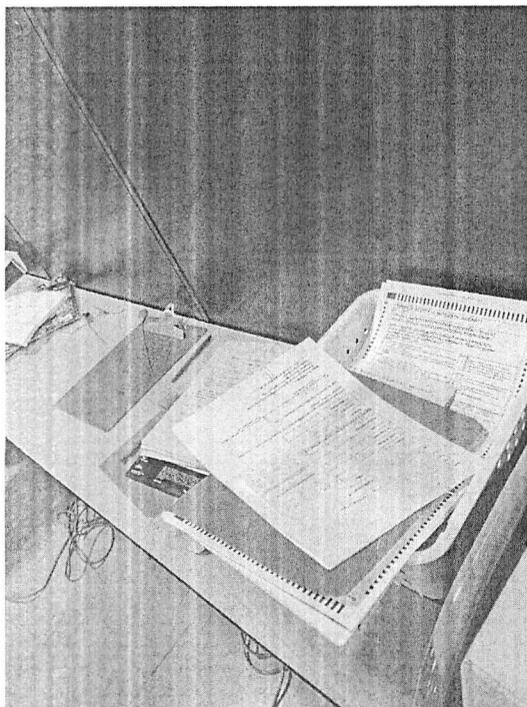


*Carla Daniel*  
Notary Public

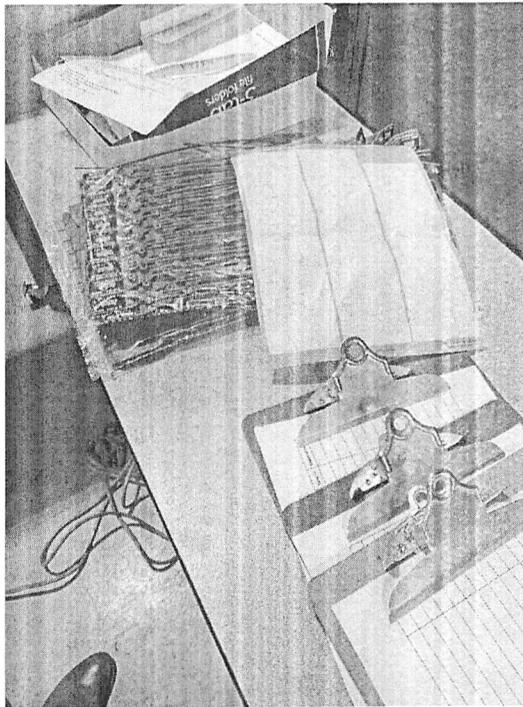
My Commission Expires 07-29-2024

Annex 1

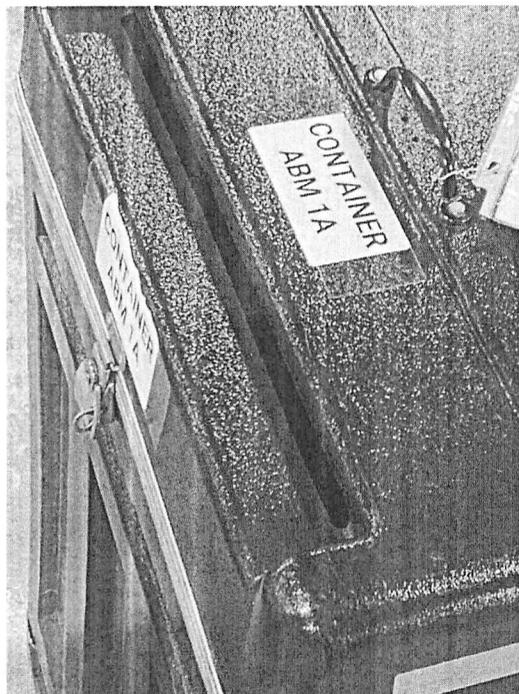
Picture 1



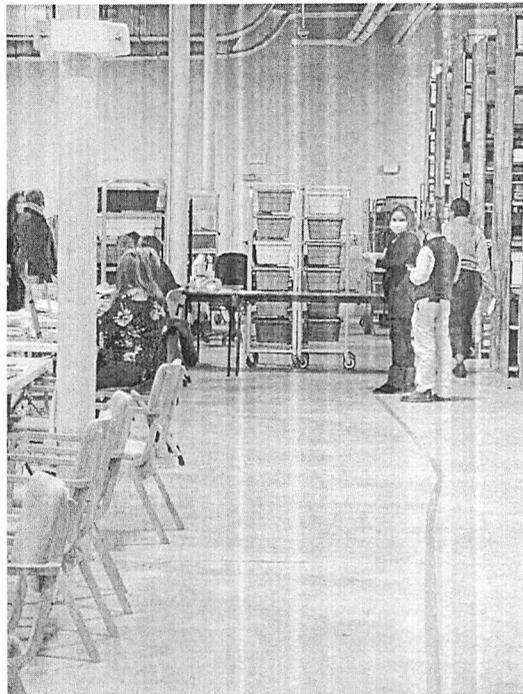
Picture 3



Picture 2



Picture 4



UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR., )

Plaintiff, )

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. )

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

**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 cardboard 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 Observers 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 County’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.

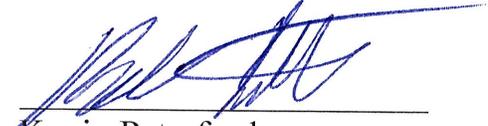
29. While in Henry County, I personally witnessed ballots cast for Donald Trump being placed in the pile for Joseph Biden. I witnessed this happen at table "A."

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

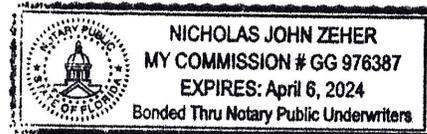
COUNTY OF PALM BEACH

Kevin Peterford, appeared before me, a Notary Public in and for the above jurisdiction, this 17<sup>th</sup> day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal]

  
Notary Public

My Commission Expires \_\_\_\_\_



# Exhibit A



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

A handwritten signature in black ink, appearing to read "D. Shafer".

David J. Shafer  
Chairman

A handwritten signature in black ink, appearing to read "Michael Welsh".

Michael Welsh  
Secretary

# Exhibit B

# **Audit/Recount Monitor and Vote Review Panel Handout**

### Audit Observer Handout

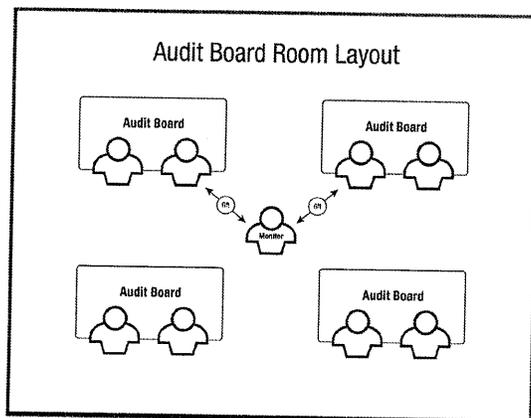
#### Arrival:

- 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

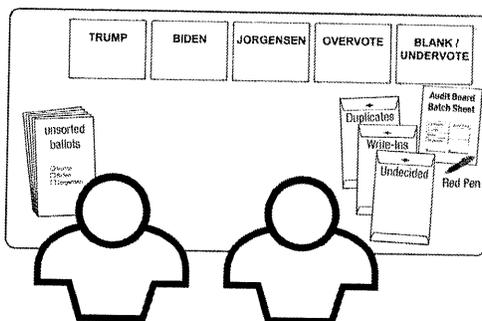
Delivered Vote Review Panel ballots (if any)

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:**

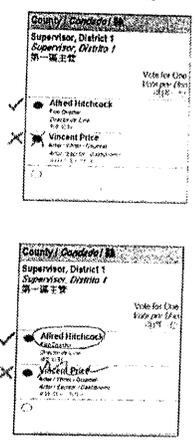
- Duplicated Ballots
  - Retrieve the original ballot and compare the duplicated ballot to ensure proper duplication. Using the original ballot, record the vote tally for the duplicated ballots using the Vote Review Panel Tally Sheet.
- Undetermined Ballots
  - Review the undetermined ballots where the 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 _____							
Ballot Name	Ballot Type (Duplicate, Write-In, Undetermined)	# of Ballots in Batch	Votes for Trump	Votes for Biden	Votes for Ingraham	Overvotes	Blank/ Undervotes	Invalid Ballots	Valid Ballots	Marked Tally Sheet	Entered into Aris
Example	Duplicate	5	2	2	1	0	0	0	2	3	✓

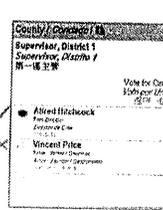
### Common Adjudication Scenarios

## Common Adjudication Scenarios

#### OVERVOTES With corrections from voters

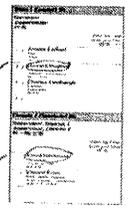


#### HESITATION MARKS

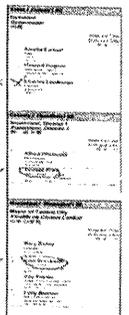


#### MARKING ERRORS

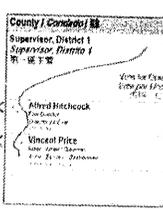
Consistent patterns



Inconsistent patterns



#### STRAY MARKS IN TARGET AREAS



# Exhibit C



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

A handwritten signature in black ink, appearing to read "David J. Shafer".

David J. Shafer  
Chairman

A handwritten signature in black ink, appearing to read "Michael Welsh".

Michael Welsh  
Secretary

**DECLARATION OF** [REDACTED]

I, [REDACTED], hereby state the following:

1. [REDACTED]  
[REDACTED]  
[REDACTED]
2. I am an adult of sound mind. 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]  
[REDACTED] Over the course of my career, I specialized in the marines [REDACTED]  
[REDACTED]  
[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]  
[REDACTED]  
[REDACTED]

[REDACTED]

7. [REDACTED]

[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]

[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]

[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]  
[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]

[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] [REDACTED] [REDACTED] a time period in [REDACTED]



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.

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*[Faint, illegible text]*

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## **Declaration of Christos A. Makridis**

Pursuant to 28 U.S.C Section 1746, I, Christos A. Makridis, 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 hold dual Doctorates and dual Masters in Economics and Management Science & Engineering from Stanford University and a BS in Economics from Arizona State University. I hold roles in the public sector, private sector, and higher education.
3. I reside at 875 10th Street NW, Washington, DC, 20001.
4. Georgia uses Dominion Voting Systems (DVS), which has a history of technical glitches that have not been fixed. DVS was rejected three times in Texas because of its inherent defects. It has caused multiple anomalies and delays. In Gwinnett County alone, these software glitches have affected roughly 80,000 absentee mail-in ballots.

Although election officials have said that these glitches have been corrected and are not reflected in the final tallies, it is hard to take these statements on faith without any evidence, particularly given DVS' bad track record. Moreover, it is also possible that there are many other instances of "glitches" that were not caught.

5. These glitches are on top of those that occurred in Morgan and Spalding counties. Marcia Ridley, elections supervisor at Spalding County Board of Elections, said that the company "uploaded something last night, which is not normal, and it caused a glitch," preventing poll workers from "using the pollbooks to program the

smart cards that voters insert into voting machines” and causing delays for voters.

6. Roughly 1.5 million Georgia voters requested absentee ballots, which is far above the 200,000 absentee ballots from 2016, and is 30% of their estimated 5 million voter turnout. As of November 6th at 6pm, Georgia election officials said that more than 14,200 provisional ballots needed to be counted. Jeff Greenburg, a former Mercer County elections director, remarked that over his 13 years in the role, he had only processed 200 provisional ballots in total and it would take his county 2.5 days to process 650 provision ballots. That implies nearly 55 days to approve, which suggests that the current pace they are approving provisional ballots is implausibly fast if they intend to call the election soon.

It is also curious that the correlation between the number of mail-in votes for Biden net of Trump and the 2016 share of votes for Clinton is stronger than the total votes for Biden net of Trump. This evidence is consistent with the view that manipulation is easier with mail-in votes and more likely to occur where there is less Republican competitive oversight (e.g., poll watchers turned away).

7. The counties with the greatest reported software glitches and delays are also the counties with the biggest swings in votes for Biden. The list of numbers below tabulates the percent change in Democrat votes from one election to the other for some of the most Democrat counties in the state. Importantly, the increase between 2020 and 2016 is systematically larger than the 2008 to 2012 or 2012 to 2016 increases: for example, the median (mean) increase from 2016 to

2020 for these counties was 27% (30.6%), whereas they were only 11.5% (9.8%) and -4% (-2.8%).

These are anomalies that evidence a high likelihood of fraudulent alterations within the software or the system.

Increase in Democrat Votes from Election-to-Election, in %

County 2008-2012 / 2012-2016 / 2016-2020

Fulton -6% 16% 28%

DeKalb -6% 6% 22%

Gwinnett 3% 25% 45%

Cobb -6% 20% 38%

Chatham -4% 3% 26%

Henry 8% 14% 46%

Muscogee -4% -6% 24%

Bibb -1% -5% 18%

Douglas 2% 9% 37%

Clarke -14% 16% 22%

Mean -2.8% 9.8% 30.6%

Median -4% 11.5% 27%

These changes alone are highly suspect. The 2016 to 2020 increase in Democratic votes is at least over double in these counties.

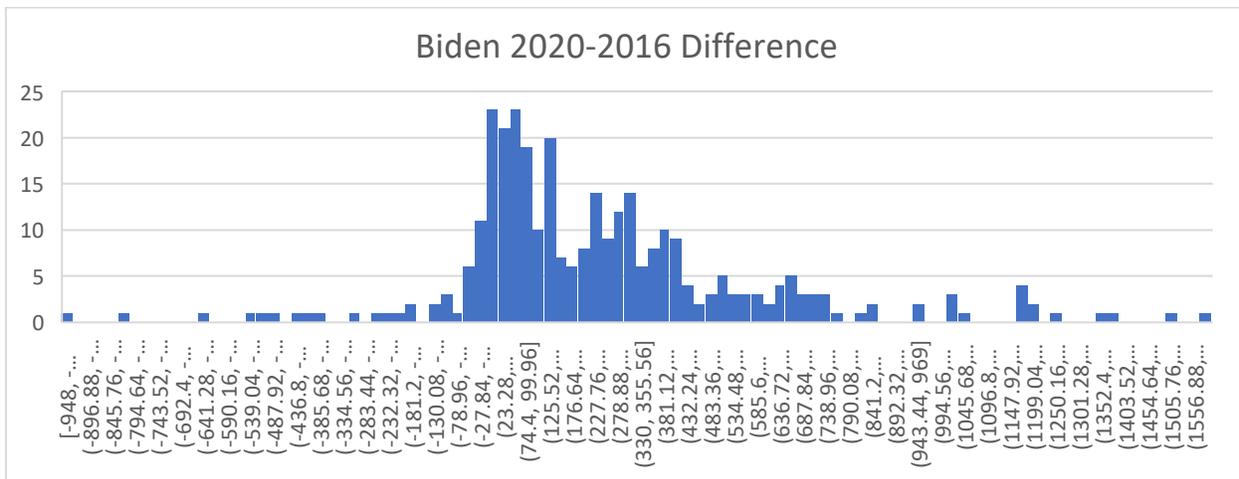
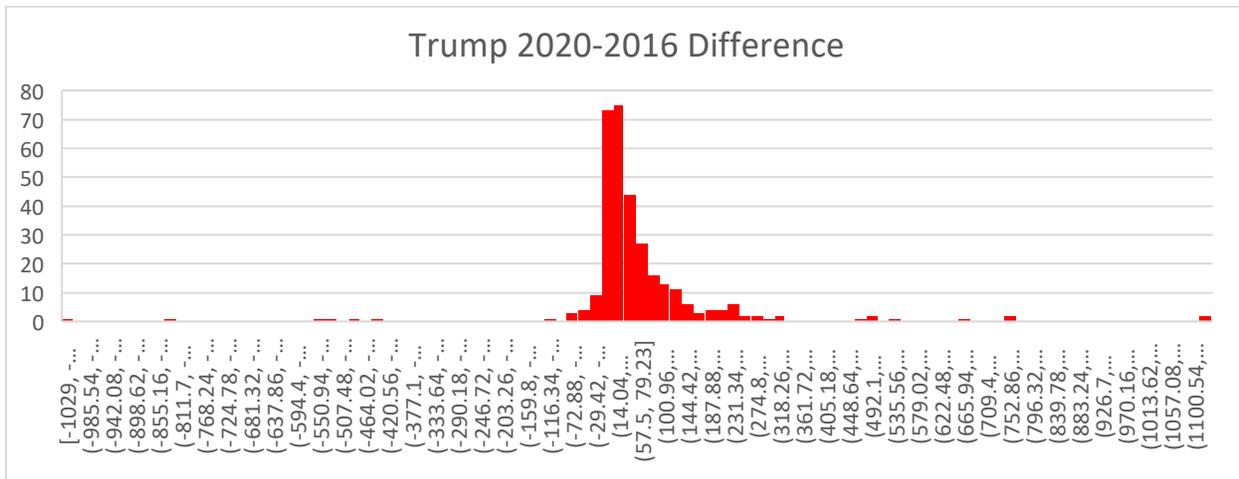
Moreover, all it takes is one or two counties, like Fulton, to become a hotspot for fraud for it to sway the overall election outcome, particularly via Atlanta.

Moreover, as a control group, consider the fact that counties that are on the Northeastern border of Alabama have a much lower increase in Democrat votes for Biden. These counties are comparable given their proximity, making the especially large surge in Georgia more suspect.

There are also many precincts within these counties that have highly suspect numbers. For example, 97% of the votes are for Biden in SC16A (Fulton County) and 97% in Snapfinger Road (DeKalb). Many more examples abound. The distribution is also highly skewed towards Biden: whereas 10% of the precincts have an over 95% Biden vote, none of the precincts have an over 90% Trump vote. Given the historical distribution of votes from 2016, this fact pattern is suspect.

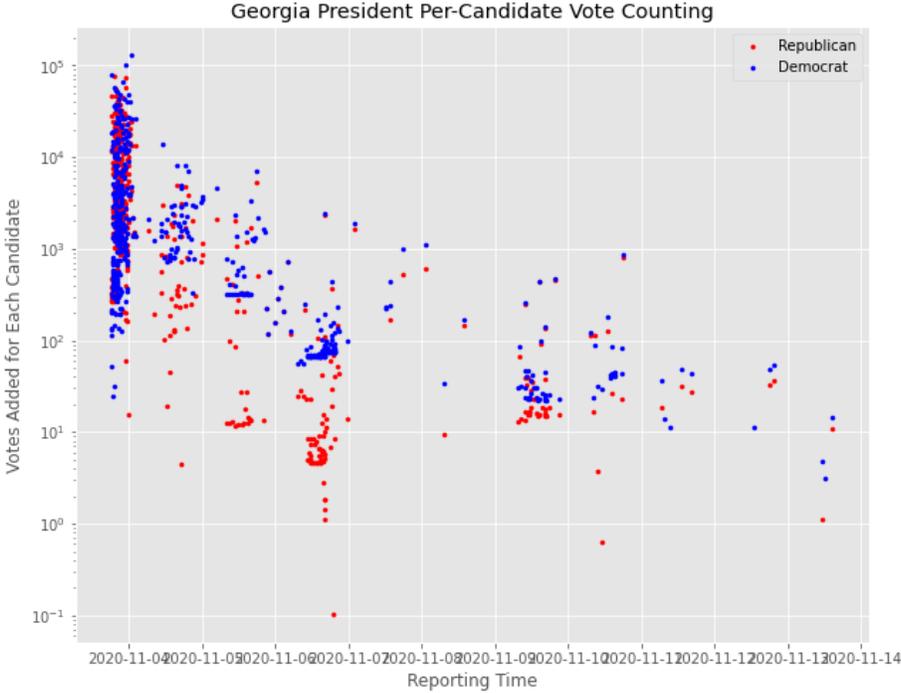
8. One diagnostic for detecting fraud involves Benford's law. In the case of election fraud, that means looking at the distribution of digits across votes within a specified geography. Using precinct level data for Georgia, my research identified 1,017 suspicious precincts out of 2,656 when we look at advance ballots. Even more precincts (1,530) were flagged as suspicious for election day votes. While Benford's law is not a silver-bullet for identifying fraud on its own, it suggests suspicious activity that warrants additional attention.
9. Yet another way of detecting statistical anomalies involves looking at the distribution of the change in 2020 to 2016 vote shares of Trump

and Biden. Whereas the distribution for Trump is perfectly “normal,” the distribution for Biden is non-normal: it is skewed heavily to the right. This is not present in other states that do not have similar concerns about fraudulent activity, but is present in the states with those concerns (e.g., Pennsylvania too).



10. There were many puzzling incidents across states, including Georgia, where surges of votes for Biden were observed at odd hours of the morning of November 4<sup>th</sup>. In particular, preliminary analysis on the live Edison Research data reveals that new ballots were coming in increasingly more slowly, but they were larger for

Democrats than for Republicans. The combination of the pattern and timing is puzzling, particularly since it is not present in other states, like Florida, that do not have similar concerns about fraud.



I declare under penalty of perjury that the forgoing is true and correct.  
Executed this November 16, 2020.

Christos A. Makridis,

# Ballot-Marking Devices Cannot Ensure the Will of the Voters

Andrew W. Appel, Richard A. DeMillo, and Philip B. Stark

## 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 devices (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 ensure that the votes recorded on paper ballots are tabulated correctly, but no audit can ensure 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 BMD certified by the Election Assistance Commission is contestable or defensible.

**Keywords:** voting machines, paper ballot, ballot-marking device, election security

## INTRODUCTION: CRITERIA FOR VOTING SYSTEMS

**E**LECTIONS 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” (Rivest and Wack

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2006; Rivest 2008; Rivest and Virza 2016). 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.<sup>1</sup> 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 (Rivest and Wack 2006; Rivest 2008). 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 (U.S. Election Assistance Commission 2017).

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 error? *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 ballot-marking device (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.<sup>2</sup>

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.<sup>3</sup> 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. Contestability 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.<sup>4</sup>

<sup>1</sup>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.

<sup>2</sup>There are other notions connected to contestability and defensibility, although essentially different: Benaloh et al. (2011) define a *P-resilient canvass framework*, *personally verifiable P-resilient canvass framework*, and *privacy-preserving personally verifiable P-resilient canvass frameworks*.

<sup>3</sup>See footnote 17.

<sup>4</sup>If voters are the only means of detecting and quantifying the effect of those problems—as they are for ballot-marking devices (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 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.”

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* (Stark and Wagner 2012): 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.<sup>5</sup> 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 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, “Contestability/Defensibility of Hand-Marked Opscan,” for a detailed analysis.

Over 40 states now use some form of paper ballot for most voters (Verified Voting Foundation 2018). 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* 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.

<sup>5</sup>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.

## 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.<sup>6</sup> 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.<sup>7</sup>

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* provides a computerized user interface (UI) that presents the ballot to voters and captures their expressed selections—for instance, a touchscreen interface or an assistive in-

terface 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<sup>8</sup> provide the voter a touchscreen (or other) interface to

<sup>6</sup>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.

<sup>7</sup>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.

<sup>8</sup>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.

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,<sup>9</sup> 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.

### 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 mis-marks 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 Wi-Fi 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 (Feldman et al. 2007).

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 re-

mote 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.<sup>10</sup>

Computer systems (including voting machines) have so many layers of software that it is impossible to make them perfectly secure (National Academies of Sciences, Engineering, and Medicine 2018, 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.

### *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 (Stark 2008; Stark 2009; Lindeman and Stark 2012). The National Academies of Science, Engineering, and Medicine recommend routine RLAs after every election (National Academies of Sciences, Engineering, and Medicine 2018), as do many other organizations and entities concerned with election integrity.<sup>11</sup>

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.

<sup>9</sup>More precisely, the ICP320 optical scanner and the BMD audio+buttons interface are in the same cabinet, but the printer is a separate box.

<sup>10</sup>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.

<sup>11</sup>Among them are the Presidential Commission on Election Administration, the American Statistical Association, the League of Women Voters, and Verified Voting Foundation.

An 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.<sup>12</sup>

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 seven divided by the margin—ballots selected randomly from the contest.<sup>13</sup> 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 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* (Benaloh et al. 2011; Lindeman and Stark 2012; Stark and Wagner 2012; Stark 2018), 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: a BMD printout is not a trustworthy record of the expressed votes. Neither a compliance audit nor an 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 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.

### (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

<sup>12</sup>Risk-limiting audits (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.

<sup>13</sup>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 under-votes and invalid votes.

“flipping” a vote for one candidate into a vote for a different candidate changes the difference in their tallies—i.e., the margin—by two votes. If hacking or bugs or misconfiguration could change 5% of the votes, that would be a very significant threat.

Although public and media interests 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 (DeMillo et al. 2018). 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 (Rayner 2009). A study by other researchers (Bernhard et al. 2020), 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.<sup>14,15</sup> 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 made only seconds before (Johansson et al. 2008).

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.<sup>16</sup>

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.<sup>17,18</sup>

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

<sup>14</sup>You might think, “the voter really *should* carefully review their BMD-printed ballot.” But because the scientific evidence shows that voters *do not* (DeMillo et al. 2018) and cognitively *cannot* (Everett 2007) perform this task well, legislators and election administrators should provide a voting system that counts the votes *as voters express them*.

<sup>15</sup>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 (Bothwell et al. 1987; Deffenbacher 1980; Wixted and Wells 2017) to confidence in psychological clinical assessments (Desmarais et al. 2010) and social predictions (Dunning et al. 1990). 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 (2011).

<sup>16</sup>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.

<sup>17</sup>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.

<sup>18</sup>Voters should *certainly not* video-record themselves voting! That would defeat the privacy of the secret ballot and is illegal in most jurisdictions.

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% x 10% x 50% or 0.25% of the voters to request a new ballot and correct their vote.<sup>19</sup> This 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 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.”<sup>20</sup> 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 on the claims of the voters?<sup>21</sup> Furthermore, the investigation itself would suffer from the same problem as above: how can one 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 (Contag et al. 2017).

<sup>19</sup>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.

<sup>20</sup>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 (Election Systems and Software 2018).) Recall also that the rate one in 400 is tied to the amount of manipulation. What if the malware flipped only one vote in 50, instead of one 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.

<sup>21</sup>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.

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, “Parallel Testing of BMDs.”

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 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., Reason 2009) 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 (Reason 2009, 167 et seq.), 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.

### CONTESTABILITY/DEFENSIBILITY OF HAND-MARKED OPSCAN

The most widely used voting system in the United States is optical-scan counting of hand-marked paper ballots.<sup>22</sup> 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 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.

<sup>22</sup>Verified Voting Foundation, “The Verifier—Polling Place Equipment—November 2020,” *Verified Voting* (2020) <<https://www.verifiedvoting.org/verifier/>> (fetched February 8, 2020).

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 of 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 poll-

workers 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 corrected without the need to inspect individual ballots: the system is contestable and defensible against this class of errors.

### END-TO-END VERIFIABLE (E2E-V) SYSTEMS

In all BMD systems currently on the market, and in all BMD systems certified by the Election Assistance Commission (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 article 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 (Benaloh et al. 2014; Appel 2018b). 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 the 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, Maryland, in 2009 and 2011).

Each E2E-V system requires its own analysis of contestability/defensibility.

*Scantegrity* (Chaum et al. 2008) 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* (Ryan et al. 2009) 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* (Benaloh et al. 2013) is a DRE+VV-PAT 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 ensure 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 five major voting-machine vendors offering such a system for sale.<sup>23</sup>

## PARALLEL TESTING OF BMDS

Wallach (2019) has proposed (in response to earlier drafts of this article) that contestability/defensibility failure of BMDs could be mitigated by *parallel testing*, which he also calls “live auditing.” Stark (2019) 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 (2019) discusses many ways in which the “signature” of how auditors interact with the BMD may differ from ordinary voters, enough to give clues

<sup>23</sup>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., S.J. Lewis, O. Pereira, and V. Teague, “Ceci N’est Pas une Preuve: The Use of Trapdoor Commitments in Bayer-Groth Proofs and the Implications for the Verifiability of the Scytl-SwissPost Internet Voting System” (March 12, 2019), <<https://people.eng.unimelb.edu.au/vjteague/UniversalVerifiabilitySwissPost.pdf>>.

to the malware about whether to cheat.<sup>24</sup> 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 across contests; language settings, font settings, and other UI settings; timing, including speed of voting and hesitation; on-screen review; etc.) for millions 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.<sup>25</sup>

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., instant-runoff voting [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

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<sup>24</sup>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.

<sup>25</sup>Provided, of course, that secure chain of custody of the ballot boxes can be demonstrated.

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.

### 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 and elsewhere suggest that truly ambiguous handmade marks are very rare.<sup>26</sup> 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.<sup>27,28</sup> 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 (Everett 2007).<sup>29</sup> 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 (Norden et al. 2008). For instance, the 2006 Sarasota, Florida, touchscreen ballot was badly designed. The 2018 Broward County, Flor-

ida, 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” (U.S. Election Assistance Commission 2007) 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 (Appel 2018c; Norden et al. 2008).

*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 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

<sup>26</sup>States do need clear and complete regulations for interpreting voter marks.

<sup>27</sup>“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.” (Appel 2009; see also Office of the Minnesota Secretary of State 2009).

<sup>28</sup>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, an RLA has a known, large chance of correcting the outcome.

<sup>29</sup>Better designed user interfaces (UI) might reduce the error rate for machine-marked ballots below the historical rate for direct-recording electronic (DRE) voting machines; however, UI improvements cannot keep BMDs from printing something other than what the voter is shown on the screen.

ballot box is well supervised on Election Day) but with the hope of substituting it later in the chain of custody.<sup>30</sup>

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.<sup>31</sup> 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 the Help America Vote Act (HAVA) and the Americans with Disabilities Act (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.<sup>32</sup> Blank cards for BMDs cost up to 15 cents each, depending on the make and model of BMD.<sup>33</sup> 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<sup>34</sup> for hand-marked paper ballots and BMDs in conjunction with the 2019 Georgia legislative debate regarding BMDs (Perez 2019). 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.<sup>35</sup>

*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.<sup>36</sup>

*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

<sup>30</sup>Some BMDs print a barcode indicating when and where the ballot was produced, but that does not prevent such a substitution attack against currently Election Assistance Commission (EAC)-certified, commercially available BMDs. We understand that systems under development might make ballot-substitution attacks against BMDs more difficult.

<sup>31</sup>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.

<sup>32</sup>Single-sheet (one- or two-side) ballots cost 20–28 cents; double-sheet ballots needed for elections with many contests cost up to 50 cents.

<sup>33</sup>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.

<sup>34</sup>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.

<sup>35</sup>Ballot-on-demand (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.

<sup>36</sup>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.

BMDs that print summary cards (which could save storage) use thermal printers and paper that is fragile and can fade in a few months.<sup>37</sup>

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 1,200 voters in a day, while one BMD can serve only about 260 (Election Systems and Software 2018)—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 (Perez 2019). A BMD solution for Georgia would cost taxpayers between three and five 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 one-dimensional or two-dimensional barcodes on the paper ballots. A one-dimensional barcode resembles the pattern of vertical lines used to identify products by their universal product codes. A two-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.

*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, Wi-Fi, 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,

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<sup>37</sup>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 April 8, 2019; Matt Bishop, Principal Investigator). 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 (U.S. Code Title 52, Chapter 207, Sec. 20701, as of April 2020).

give the attacker complete control of a system.<sup>38</sup> 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.

### 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 “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, “(Non)Contestability/Defensibility of BMDs,” 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 redeploys 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” (Appel 2018a).

Regarding these all-in-one machines, we conclude:

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<sup>38</sup>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.

- 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.

## 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 electroni-

cally. 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.<sup>39</sup> When pen and paper are 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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<sup>39</sup>It is conceivable that cryptographic protocols like those used in E2E-V systems could be used to create BMD-based systems that are contestable and defensible, but no such system exists, nor, to our knowledge, has such a design been worked out in principle. Existing E2E-V systems that use a computer to print (encrypted) selections are neither contestable nor defensible, as explained in Section 1, “Introduction: Criteria for Voting Systems.”

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UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR.,

Plaintiff,

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.

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

**AFFIDAVIT OF KELLY MOORE IN SUPPORT OF  
PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER**

I, Kelly Moore, 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 16, 2020 at the Lithonia Voting Facility in Lithonia, Georgia.
3. At the Lithonia location, I was originally scheduled to watch from 1:00 p.m. until 5:00 p.m. I saw irregularities at every table. Every paid auditor was not following procedure. Stacks were being created without regard for the number in the stacks. Stacks of 15 or 16 were being created instead of the required method of creating a stack of ten, and then another stack of ten at right angles on top.
4. There was no system in place that would create an accurate count. When one group left with an “unfinished box,” it was left behind for the next group – at least in once case open and unattended. I watched it to see what would happen, and a poll worker attempted to recover it as a completed box until I called the supervisor.
5. Everyone seemed confident that there would be no change in the counts and did not want to follow any rules set in place. I was confronted with Democrat poll workers and the supervisor, “Twyla” verbally harassed other poll watchers, particularly if she felt they were Republican.

5. From the handful of paper absentee ballots I was able to see up close, it looked like many of the absentee ballots were perfectly filled out, as if the bubbles had been filled in by a machine. But we were kept at such a distance we could not see if they varied in a significant way from the other absentee ballots I observed.

I declare under penalty of perjury that the foregoing statements are true and correct

  
\_\_\_\_\_  
Kelly Moore

STATE OF GEORGIA  
COUNTY OF DEKALB

Kelly Moore, appeared before me, a Notary Public in and for the above jurisdiction, this 18<sup>th</sup> day of November 2020, and after being duly sworn, made this Declaration, under oath.



  
\_\_\_\_\_  
Notary Public

My Commission Expires AUGUST 17, 2024

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR., )

Plaintiff, )

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. )

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

**AFFIDAVIT OF SCOTT GRAHAM HALL IN SUPPORT OF PLAINTIFF'S  
MOTION FOR TEMPORARY RESTRAINING ORDER**

I, SCOTT GRAHAM HALL, 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 an Election recount monitor at the Georgia World Congress Center on Saturday, November 14, 2020 and Sunday, November 15, 2020. Saturday morning during the manual recount of the mail-in ballots, I observed large quantities of ballots being cast for Joseph Biden on ballots that did not appear to have been mailed.
3. There were no creases in the mail in ballots giving the impression that they were never folded into an envelope and mailed. Most importantly, these ballots appeared to be pre-printed with the selections already made. The bubbles that one would select to choose their candidate appeared to have the exact same markings, with no different color inks, and no markings outside of the bubble as if they were all done perfectly. Hundreds of ballots at a time were counted for Biden only.
4. Additionally, on Sunday, November 15, 2020 around Noon, after most of the people had left, a table was set up in the far right-hand corner of the room outside of the area that was roped off for counting in where it was not visible

to security cameras. I noticed on the bag it was labeled "Welcome". I have attached a photograph of the table and area.

**[SIGNATURE AND OATH ON NEXT PAGE]**

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

  
SCOTT GRAHAM HALL

STATE OF Georgia  
COUNTY OF Fulton

SCOTT GRAHAM HALL appeared before me, a Notary Public in and for the above jurisdiction, this 17 day of November 2020, and after being duly sworn, made this Declaration, under oath.



  
Notary Public

My Commission Expires AUGUST 17, 2024

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*[Faint handwritten text]*

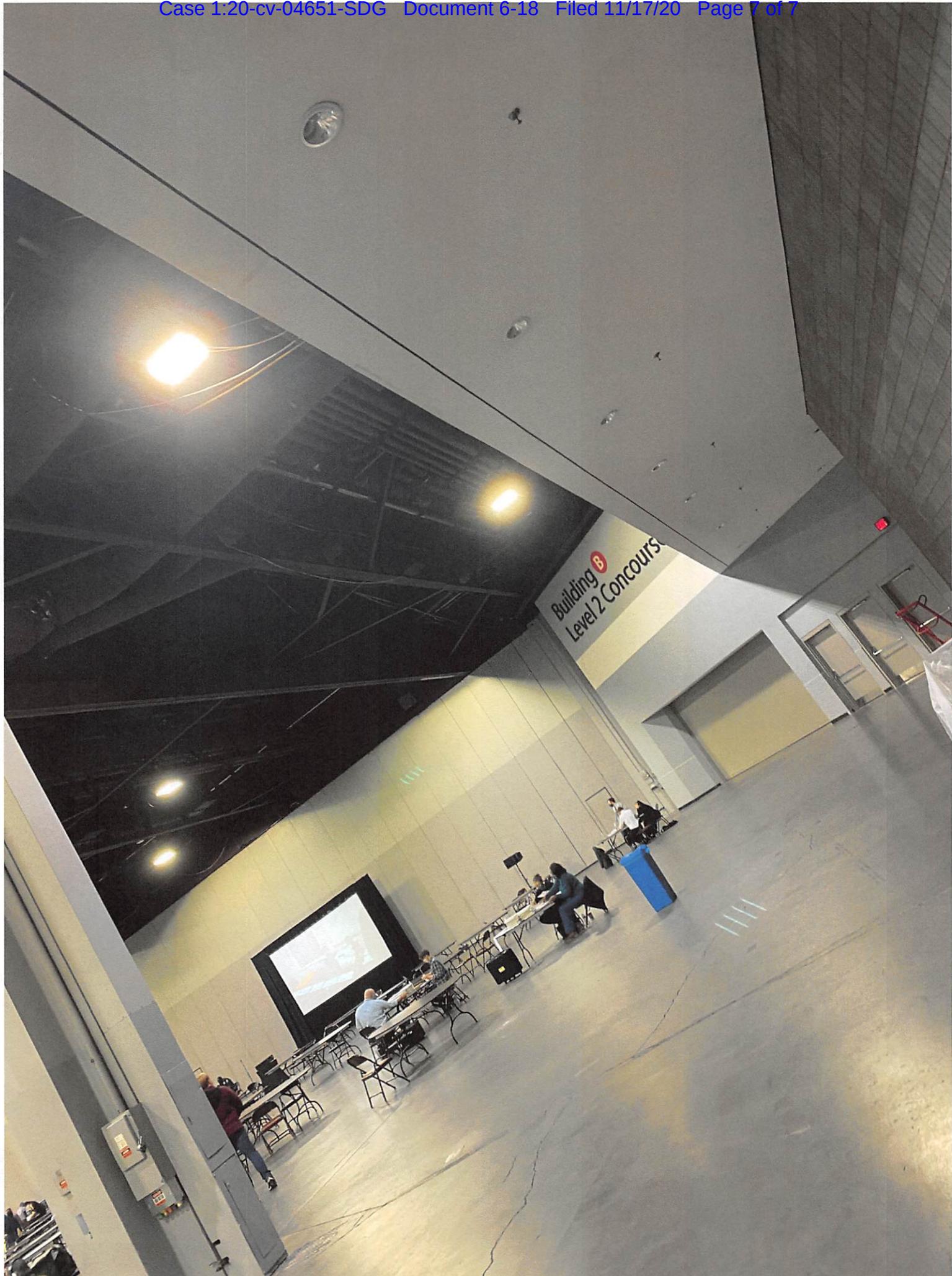


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*[Faint handwritten text]*







UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR., )

Plaintiff, )

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. )

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

**AFFIDAVIT OF ROBIN HALL IN SUPPORT OF PLAINTIFF’S MOTION  
FOR TEMPORARY RESTRAINING ORDER**

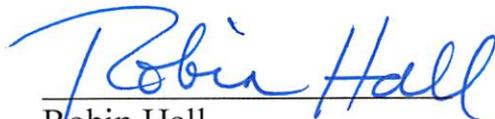
I, ROBIN HALL, declare under penalty of perjury that the following is true  
and correct:

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 at the World Congress Center on Saturday, November 14, 2020. I was certified as a Fulton County recount observer. I observed many boxes of absentee or mail in ballots being counted. Many of the boxes of ballots had voted for 100% for Biden and 0% for Trump. The ballots appeared to be perfectly filled out as if they were pre-printed with the presidential candidate selected. They did not look like a person had filled this out at home. All of them looked alike. Me and the other observers wrote down which batch headers and box number ranges were suspicious. I have created a spreadsheet with the list of batch headers.

**[SIGNATURE AND OATH ON NEXT PAGE]**

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

  
Robin Hall

STATE OF Georgia

COUNTY OF Fulton

Robin Hall appeared before me, a Notary Public in and for the above jurisdiction, this 17<sup>th</sup> day of November 2020, and after being duly sworn, made this Declaration, under oath.

[Affix Seal]



  
Notary Public

My Commission Expires AUGUST 17, 2024

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*All Questionable Ballots  
Looked machine stamped*

Table 1

	BATCH HEADER	BOX RANGE				
		1-8				292-298
	11	9-15				421-426
	18	12-25				465-471
	26	26-34				237-243
92 Biden 7 Trump	27	26-34				455-465
	28	26-34				271-280
	32	26-34				465-471
100% Biden	33					437-445
100% Biden	34					231-236
100% Biden	35					215-221
100% Biden	36					216-224
100% Biden	37					397-403
	38	35-46	35-42			446-453
	40	35-46	35-42			
	41	35-46	35-42			
	44	35-46				
	56	56-62	54-62	73-80		
	62	59-64	58-64			
	85	85-93	79-88	79-90		
	87	85-93	79-90			
	90	85-93	79-90			
	93	85-93	88-97	94-108	91-97	
	98		94-108		98-107	
	101	99-108	94-108	102-109	98-107	
	104	99-108	94-108	102-109	98-107	
	109	108-118	109-118	102-109		
	110	110-116	108-118			
	124	114-126	124-130			
	127	124-130				
	133	129-136	137-146			
	148	147-155				
	151	147-155				
	155	147-155				
	157					
	158	158-165				
	163	158-165				
	169	166-172				
	178	171-182	173-179			
	180	171-182				
	181					
	186		203-209			
	202	202-208				
hid yellow sheet	225	225-232				
	251	244-253	264-270	250-256		

*95-100%  
Biden  
for  
most  
of  
them*

	277	271-280	277-284			
	285	285-291				
96 Biden-4 Trump	286	285-291				
96 Biden-4 Trump	289	285-291				
	309					
	318	311-323	316-323			
	319	311-323	316-323			
	336	333-341				
	341	333-341				
	350					
	354					
	358	358-364				
	389	389-396				
	390	389-396				
	392	389-396				
	428					

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION

L. LIN WOOD, JR., )

Plaintiff, )

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. )

CIVIL ACTION FILE NO.  
1:20-cv-04651-SDG

**AFFIDAVIT OF BARBARA HARTMAN IN SUPPORT OF PLAINTIFF'S  
MOTION FOR TEMPORARY RESTRAINING ORDER**

I, BARBARA HARTMAN, 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 an election official auditor at the Georgia World Congress Center on Saturday, November 14, 2020 and Sunday, November 15, 2020 for the hand count of ballots from the November 3, 2020 presidential election in Fulton County, Georgia.
3. I was given several stacks of absentee ballots to count. The absentee ballots looked as though they had just come from a fresh stack. I could not observe any creases in the ballots and did not seem like they were ever folded and put into envelopes or mailed out. The marked bubbles for each candidate was filled in black ink perfectly within the circle. They looked as if they were stamped.
4. The majority of the mail in ballots that I reviewed contained suspicious black perfectly bubbled markings for Biden.

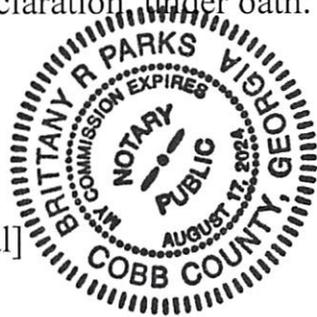
**[SIGNATURE AND OATH ON NEXT PAGE]**

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

Barbara Hartman  
BARBARA HARTMAN

STATE OF Georgia  
COUNTY OF Fulton

BARBARA HARTMAN appeared before me, a Notary Public in and for the above jurisdiction, this \_\_\_ day of November 2020, and after being duly sworn, made this Declaration, under oath.



[Affix Seal]

Brittany R. Parks  
Notary Public

My Commission Expires AUGUST 17, 2024

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