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March 24, 2019

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Re: HB316 and *Curling v. Raffensperger*, No. 17-CV-02989-AT (N.D. Ga.)

Dear Vincent and Bryan:

The purpose of this letter is to restate our demand communicated in our letter of April 16, 2018 (copy attached as Exhibit A), that your clients Secretary of State Brad Raffensperger and State Election Board Members David J. Worley, Rebecca N. Sullivan, Ralph F. Simpson, and Seth Harp (the “Election Board”) exercise their power, authority and responsibilities under Georgia law and the United States Constitution to conduct the upcoming 2019 and 2020 elections using hand-marked paper ballots and employing statistically valid post-election audits in all such elections. We also wish to supplement our objections stated in our letter of February 18, 2019 (copy attached as Exhibit B) to the un-auditable electronic ballot marking devices contemplated by the HB316, recently passed by the General Assembly.¹ HB316 is not a realistic or legally viable solution to Georgia’s DRE voting system security flaws and does not address the issues in the *Curling v Raffensperger* case.

It is a fair reading of Judge Totenberg’s September 17, 2018 Order that the Secretary would have been enjoined to use hand-marked paper ballots in the November 2018 election had there been more time to change from the DRE machines. *Curling v. Kemp*, 334 F. Supp. 3d 1303, 1327 (N.D. Ga. 2018). With the 2018 midterms finalized in

¹See <http://www.legis.ga.gov/Legislation/20192020/184671.pdf>.

December, the Secretary continues to have the time and, given the vulnerability of the DRE machines, the duty to replace the DREs with hand-marked paper ballots. The change to a reliable and verifiable voting system cannot wait until a totally new system is deployed in 2020 (or, realistically, far beyond); there continue to be important elections in Georgia almost every month in 2019². As explained below, the new system contemplated by HB316, is fatally flawed in numerous constitutional and statutory respects. It is imperative that the State immediately deploy the voting method that is the modern standard in the country-- hand-marked paper ballots with precinct scanning and statistically valid post-election audits.

A. HB316 Does Not Address the Fundamental Issues raised in our Third Amended Complaint or in Judge Totenberg's September 2018 ruling.

As stated in our February 18, 2019 letter, electronic voting on Ballot Marking Devices ("BMDs") is merely an updated and unproven version of electronic voting on DREs. According to virtually every qualified expert in the field, BMDs are at least as vulnerable to undetected error or attack as the insecure DRE system. As we have previously stated, the paper printout ballot generated by BMDs are generally unverifiable and unverified by the voter, and the results the system produces are not auditable.

We intend to challenge the BMDs as an unconstitutional infringement on a citizen's right to vote and have the vote counted accurately. As stated in Count I of Coalition's Third Amended Complaint (Doc 226, ¶169):

Inherent in individuals' fundamental right to vote is the right to participate in a trustworthy and verifiable election process that safely, accurately, and reliably records and counts all votes cast and that produces a reliable election result capable of being verified as true in a recount or election contest.

BMDs as a class of election machines simply cannot meet these basic requirements, and the particular systems that are certified by the U.S. Election

² There have been special elections in January, February, March 2019, and more are scheduled for April 2019 and beyond.

Assistance Commission (“EAC”) and likely to respond to Georgia’s Request for Proposal (“the RFP”) are deficient in multiple respects. There are five EAC certified systems.³

- a) ES&S ExpressVote;
- b) Dominion ImageCast X;
- c) Unisyn FreedomVote;
- d) Hart Verity Duo (certified March 18, 2019); and
- e) Clear Ballot Clear Access (certified March 19, 2019).

As you may know, three of the EAC-certified BMDs under consideration for purchase by Georgia (ES&S, Dominion and Unisyn) convert the voter’s selection on the screen to a barcode and it is the barcode that is printed on the printed vote record (“the paper ballot”) and then fed into the scanner by the voter. Although the printed vote record also includes human-readable information that is supposed to show the votes cast by the voter, it is the barcode (not readable by the voter) that is read and counted by the scanner and the basis for the ultimate tabulation of the votes.

The fourth system, Hart, works similarly, but rather than tabulating barcodes, a human readable list of selections is printed and read by the scanner, interpreted into votes, and tabulated. The fifth system’s BMD, Clear Ballot Access, prints the voter’s selection onto a regular full face paper ballot with bubbles colored in by candidate names, and tallies the votes upon optical scanning of the bubble marks.

Not one of these five systems produces an auditable result. As we explained in our February 18, 2019 letter, auditing and voting system experts are in virtually unanimous agreement that in most elections, electors are unable to verify that the machine has printed the ballot content or votes selected with 100% accuracy. Ballots are simply too long and too complex for voters to reliably detect errors in the printout of the “official paper ballot” record. For example, voters are not likely to detect if down-ballot races, or numerous referenda, are left off the paper printout, or if their votes were switched between “Yes” and “No.” In addition, most voters, having already spent the time voting on the machine, do not undertake the tedious additional step of verifying that the machine has recorded the voter’s selections correctly or completely. Further,

³ For an explanation of the product offerings in the BMD category, see https://trustthevote.org/wp-content/uploads/2019/02/14Jan_PrinciplesGuidelinesForPVR-v4.5.pdf, page 14.

realistic and effective procedures to identify and address faulty machines in the polling place are unlikely to be developed.

Even if these severe problems with voter verification and auditing could be overcome, there is no practical way for pollworkers to respond to a voter's report that a machine made an error in recording a vote. For example, a pollworker cannot ask to see the voter's ballot or other evidence of the alleged error, without violating statutory secret ballot protections. Having no means of verifying the error, the pollworker must either ignore the risk of continuing to operate a misprogrammed BMD, or accept the voters' word and remove the machine from service. Even a small number of incorrect (or malicious) error reports could lead to long lines and disenfranchisement of voters.

It is for these reasons that the only expert on the SAFE Commission voted against the SAFE Commission's recommendation to deploy BMDs⁴ and the inventor of risk limiting audits and the nation's foremost expert on post-election auditing, Professor Philip Stark, concludes that audits of BMD-generated results are "meaningless."⁵ Twenty-four leading voting systems experts, cybersecurity experts, and election quality leaders echoed this concern in a letter to the SAFE Commission, noting that a valid BMD audit is "impossible."⁶ Further, the National Academy of Sciences warned: "Unless a voter takes notes while voting, BMDs that print only selections with abbreviated names/descriptions of the contests are virtually unusable for verifying voter intent."⁷ We are unaware of any independent qualified expert who disagrees with the near universal conclusion that current-generation BMDs should not be used as the standard method of voting. We acknowledge BMDs may be the best (although still inadequate) currently available choice for voters with disabilities who need electronic assistance in voting, and the best available accessible units should be installed in each polling place.

⁴ <https://www.linkedin.com/pulse/why-computer-scientists-prefer-paper-ballots-wenke-lee>

⁵ <https://coalitionforgoodgovernance.sharefile.com/d-sd71f31ae0914ac8a>

⁶ <https://coalitionforgoodgovernance.sharefile.com/d-s4fd23d23d9e44c5b>

⁷ Securing the Vote: Protecting American Democracy, at 79;
https://www.nap.edu/login.php?record_id=25120&page=https%3A%2F%2Fwww.nap.edu%2Fdownload%2F25120

Because the BMDs do not produce auditable “accountable” election results, their use violates the U.S. Constitution. As Judge Totenberg stated in her September 17, 2018 ruling:

If a new balloting system is to be launched in Georgia in an effective manner, it should address democracy’s critical need for transparent, fair, accurate, and verifiable election processes that guarantee each citizen’s fundamental right to cast an accountable vote.

Curling, 334 F. Supp. 3d at 1328.

B. The Barcode Systems Do Not Even Comply with HB316

It should go without saying that requiring a voter to cast a barcoded vote that they cannot read or know the meaning of is an impermissible burdening of the right to vote. In addition to not meeting U.S. Constitutional requirements, the three systems that use bar codes (ES&S, Dominion and Unisys) do not even comply with a number of the specific provisions of HB316.

1. *Official results not “elector verifiable” or “readable by the elector”*

HB316 provides:

7.1. 'Electronic ballot marker' means an electronic device that does not compute or retain votes; may integrate components such as a ballot scanner, printer, touch screen monitor, audio output, and a navigational keypad; and uses electronic technology to independently and privately mark a paper ballot at the direction of an elector, interpret ballot selections, communicate such interpretation for elector verification, and print an elector verifiable paper ballot.

The barcoded votes on the “paper ballot” are not, of course, “elector verifiable.” Though these three systems also print what the vendors say is a human readable recapitulation of the voter’s selections, that information does not constitute the “ballot” or “vote” that will be counted; it is the barcode that the scanners read as the official vote cast. The voter, however, has no way of knowing what the barcode says. The barcode may be coded incorrectly or coded correctly on the touchscreen and then miscoded at the scanner where the vote is cast.

The use of barcodes further runs afoul of Sections 18 and 19 of HB316 which, together, require the official ballot governing the result to be in a format “readable by the elector.” HB316 Section 18 (lines 378-380) states that the “electronic ballot markers shall produce paper ballots which are marked with the

elector's choices in a format readable by the electors." HB316 Section 19 (lines 558-561) states that such paper ballot "printed by the electronic ballot marker shall constitute the official ballot *and* shall be used for, and govern the result in, any recount conducted pursuant to Section 21-2-495 and any audit conducted pursuant to Section 21-2-498." The fatal problem with the three systems (ES&S, Dominion and Unisyn) which use barcodes is that the portion of the ballot that is "readable by the elector" is *not* the ballot that is tabulated or that governs *any* result at any stage of ballot processing.

2. *Official results cannot be "manually inspected"*

The use of barcodes also is inconsistent with HB316 Section 42 (lines 1232-1233), which states: "Audits performed under this Code section shall be conducted by *manual inspection* of random samples of paper official ballots." (Emphasis added). But the barcodes on the "paper official ballots" determine the results to be audited, and they cannot be manually inspected.

3. *Systems Improperly "retain votes"*

Section 7.1 of HB316 bill appropriately prohibits BMDs that "compute or retain votes." The BMDs offered by Dominion and ES&S, however, have the capacity to retain votes and tabulate votes. This "auto-cast" capacity has been dubbed "permission to cheat" by the voting system computer scientists because one operational setting allows the unit to cast votes directly from the touchscreen unit without printing a ballot for verification, much like DREs.⁸ An additional prohibited capability is the setting using the "all-in-one" BMD as a scanner for vote capture, where after the voter reviews his machine-printed paper ballot, the voter casts his ballot into the BMD scanner slot rather than a stand-alone optical scanner.⁹ The all-in-one machine combines the scanner and printer path, permitting additional unauthorized marks to be made by the printer onto the paper ballot, unseen by the voter after he has cast this ballot into the scanner slot. This is the technology and security flaw that is causing the NY Board of Elections to consider decertification of the use of this technology in the Dominion BMD.¹⁰

⁸<https://freedom-to-tinker.com/2018/09/14/serious-design-flaw-in-ess-expressvote-touchscreen-permission-to-cheat/>

⁹ <https://freedom-to-tinker.com/2019/03/08/reexamination-of-an-all-in-one-voting-machine/>

¹⁰The system that is under investigation in New York uses the same technology as ES&S' ExpressVote BMD. <https://s3.amazonaws.com/ftt-uploads/wp-content/uploads/2019/03/07164530/190307-Kellner-memo-Dominion-ICE.pdf>;

4. *Violation of Secret Ballot Requirement*

The scanners used by ES&S (and probably other vendors) violate Georgia's secret ballot laws and HB316. The Georgia Constitution states: "Elections by the people shall be by secret ballot." (Ga. Const. Art. II, § 1, ¶ I). Section 26 (line 533) of HB316, requires that ballot marking devices "[p]ermit voting in absolute secrecy so that no person can see or know any other elector's votes." *See also* O.C.G.A. § 21-2-365(6) (scanning systems "shall permit voting in absolute secrecy").

ES&S DS200 scanners capture timestamps on each ballot record at the time the voter casts the ballot. The order of voters casting their ballots in the polling place can easily be determined by poll workers, poll watchers, security video surveillance, other voters, the public observing the election, and commercial data collectors. Insiders with access to the internal memory records of the optical scanners can connect a voter with his ballot. That information can be illicitly sold or abused to violate the voters' constitutional right to an absolutely secret ballot. While some vendors claim to "anonymize" reported ballot data by changing the timestamps for external reports when the data is exported to public records, the original electronic records containing the timestamp and chronological order of ballots cast can continue to be accessed by insiders and successful hackers.

Coalition Plaintiff's Third Amended Complaint includes a claim for the violation of voters' right to cast an absolutely secret ballot. The scanners incorporated in some of the BMD voting systems under consideration violate Georgia's requirement of "absolute secrecy" in voting.

In sum, these conflicts between HB316, which clearly contemplates the use of BMDs, and the realities of how these unproven electronic systems operate, underscore how ill-served Georgia citizens will be if these systems are ever purchased, particularly given their outrageous cost and the availability of much more economical and superior alternatives.

C. The "Gold Standard" Alternative: Paper Ballots, Precinct Scanning and Proper Audits

In her September 17, 2018 Order, Judge Totenburg stated: "the Court advises the Defendants that further delay is not tolerable in their confronting and tackling the challenges before the State's election balloting system." *Curling*, 334 F. Supp. at 1303. As we have communicated for almost two years and demanded again in April, 2018, the

State has an inexpensive and fully verifiable “gold standard” system immediately available at minimal cost, with no delays: hand marked paper ballots, scanned by the State’s Diebold Accu-vote Optical Scanners, and tabulated by the GEMS servers currently in use.

What the Coalition Plaintiffs demand is *the standard method* of voting in this country. We estimate that across the nation, approximately 112,000 precincts covering 132 million registered voters use hand-marked paper ballots with precinct scanners of the type we recommend be deployed into immediate service in Georgia. The specific optical scan equipment currently owned by Georgia is successfully used in over 11,300 precincts serving 13 million voters across the country. This method uses equipment that Georgia officials already use in every election in every county election office. In addition, there are hundreds of experienced election administrators across the country who can provide assistance if needed in making this transition. We particularly emphasize and recommend precinct scanning of paper ballots as explained on page 4 of the April 16, 2018 letter. It is the most secure and widely accepted method of balloting.

Expanding the inventory of optical scanners sufficient to supply every polling place immediately would likely cost less than \$200,000 and serve the state well for several years to come while the State selects and employs a new auditable balloting system.

Even if the BMDs did not have all the design and security problems described above, a system conversion on this scale with 40,000 pieces of unproven computer equipment and new programs in 159 counties with limited information technology staff during a presidential election year is irresponsible, unrealistic, unworkable, and a recipe for a chaotic 2020 election cycle and system failures. We demand a more secure and responsible transition that is immediately available to Georgia—the interim use of hand-marked paper ballots and the currently owned and operational Diebold Accu-vote optical scan system.

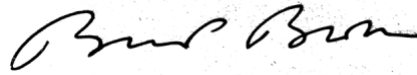
As you know, any voting system computer can be misprogrammed or hacked, and must be auditable to provide credible election results. Post-election audits are the only method of assuring that the results as reported are credible and accurate. In the Third Amended Complaint and in the Motion for Additional Injunctive Relief [Doc. 372, page 2], Coalition Plaintiffs request that the Court require post-election audits of results of paper ballot elections. Such audits should commence immediately with rules to be promulgated by the Election Board.

Further, we renew our demand that the Secretary of State take all measures to audit the voter registration database and electronic pollbooks to reconcile discrepancies and eliminate all errors that created voter disenfranchisement and polling place confusion in November 2018 and have the continuing potential to do so.

Mssrs. Russo and Tyson
March 24, 2019
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Please let me know if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce P. Brown". The signature is fluid and cursive, with the first name "Bruce" and last name "Brown" clearly distinguishable.

Bruce P. Brown

cc: Marilyn R. Marks
Robert A. McGuire
Cary Ichter

Halsey G. Knapp
David D. Cross
Catherine L. Chapple

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Bruce P. Brown

Law

April 16, 2018

By Email

Roy E. Barnes
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Re: *Curling, et al. v. Kemp, et al.*, No. 17-CV-02989-AT (N.D. Ga.)

Dear Governor Barnes and Mr. Salter:

Together with Robert McGuire, Cary Ichter and William Ney, I represent the Coalition for Good Governance, Laura Digges, William Digges III, Ricardo Davis and Megan Missett (“the Coalition Plaintiffs”) in the above-styled litigation. The purpose of this letter is to make another urgent demand upon your clients Brian P. Kemp, the Secretary of State of Georgia, and Georgia State Election Board Members David J. Worley, Rebecca N. Sullivan, Ralph F. Simpson, and Seth Harp (the “State Election Board”). Specifically, the Coalition Plaintiffs demand that Secretary Kemp and the Election Board exercise their power, authority and responsibilities under Georgia law and the United States Constitution to conduct the upcoming 2018 elections involving federal and state offices, specifically the May 22, 2018 primary election, any resulting July 24, 2018 runoff elections, and the November 6, 2018 elections, and any special elections, using hand-marked paper ballots in lieu of the Direct Recording Electronic (“DRE”) machines.

The unreliability, unverifiability and vulnerability of Georgia’s DRE systems is the subject of daily local and national news reports and continuing warnings from federal agencies, such as the Department of Homeland Security, the Election Assistance Commission, and the Federal Bureau of Investigation. As recently as last month, the U.S. Senate Select Committee on Intelligence renewed its warnings concerning the unacceptable risks of paperless electronic voting systems of the type Georgia uses. We need not repeat here the many warnings from the authorities and private sector experts concerning the urgent need to decommission Georgia’s DRE machines in favor of paper ballots.

As the Coalition Plaintiffs have explained in detail in their Proposed Third Amended Complaint, filed on April 4, 2018, because Georgia’s DRE touchscreen voting machines are insecure, lack a voter verified paper audit capacity, fail to meet minimum statutory requirements, and deprive in-person voters of the ability to cast a secret ballot

as guaranteed by Ga. Const. Art. II, § 1, ¶ 1, requiring in-person voters to use those machines violates the voters' constitutional rights to have their votes recorded in a fair, precise, verifiable, and anonymous manner, and to have their votes counted and reported in an accurate, auditable, legal, and transparent process.

“The right to vote freely for the candidate of one's choice is of the essence of a democratic society, and any restrictions on that right strike at the heart of representative government.” *Reynolds v. Sims*, 377 U.S. 533, 555 (1964). The secret ballot—“the hard-won right to vote one's conscience without fear of retaliation”—is a cornerstone of this right to freely vote for one's electoral choices. *McIntyre v. Ohio Elections Comm'n*, 514 U.S. 334, 343 (1995).

In their Proposed Third Amended Complaint, the Coalition Plaintiffs have explained in detail the factual and legal basis for their claims for injunctive relief. The Coalition Plaintiffs again urge the Secretary and the State Election Board to take immediate remedial action to protect the 2018 elections by requiring the statewide use of hand-marked paper ballots. As explained below, the Secretary and the State Election Board have the statutory authority to take this remedial action, and have feasible, economic and practical means for replacing DREs machines with paper-ballot voting immediately.

The Coalition and its supporters have made these or similar demands repeatedly over the past eleven months, and they are made again here with renewed urgency.

A. Statutory Authority

The Secretary stated in his Brief Supporting the State's Motion to Dismiss that he has the “discretionary authority to choose voting equipment for counties.” (Doc. 83-1 at 20, 21). Indeed, the Secretary and the State Board have selected, and the State has provided, both DRE voting machines and paper ballot optical scanners for every county in Georgia.

Paper ballots have been an authorized form of voting under Georgia law continuously for over 240 years. (Article IX Georgia Constitution of 1777). Paperless mechanical lever voting machines were first permitted in approximately 1930 and optical scanners were authorized for the counting of paper ballots by 1981. (*See* O.C.G.A. §§ 21-2-280). DRE machines were first permitted in 2002. Ga. L. 2002, p. 598; Ga. L. 2003, p. 517. None of these laws authorizing mechanical or electronic voting systems, however, required their use or supplanted the authority to use hand-counted or electronically counted paper ballots.¹

¹ Indeed, numerous Georgia statutes authorize, require or contemplate the use of paper ballots today. *See, e.g.*, O.C.G.A. § 21-2-280; § 21-2-281; § 21-2-366; and § 21-2-4-483.

O.C.G.A. § 21-2-379.3 permitted Georgia's first use of DRE voting systems in 2002 and required that the Secretary of State provide DRE equipment to all counties, after funds were appropriated by the General Assembly. The law, however, does not mandate their use. In fact, the State provided both DREs and optical scanning equipment for paper ballots. Further, counties retain the statutory authority to use optical scanning equipment to scan and count paper ballots, and absentee mail-in and provisional ballots.

In addition, under O.C.G.A. § 21-2-379.2, the Secretary has the authority to revoke his approval of a DRE voting system if he re-examines the system and determines that it "can no longer be safely or accurately used by electors at primaries or elections . . . because of any problem concerning its ability to accurately record or tabulate votes." An examination of the evidence and undisputed academic research would require such a finding and a wholesale revocation of Georgia's DREs. However, given the underlying statutory authority to use paper ballots (either hand-counted or counted by optical scan equipment), and the absence of any state law requiring use of DREs, the replacement of the DREs in lieu of paper ballots does not require the Secretary to invoke O.C.G.A. § 21-2-379.2.

It is true that on April 17, 2005, the State Election Board promulgated Rule 183-1-12-.01 which requires the use of DREs for in-person voting for county, state and federal elections. In doing so, the State Election Board clearly exceeded its authority under Georgia law, which does not require DREs to be used and explicitly allows the use of paper ballots. The General Assembly has charged the State Election Board to promulgate rules to ensure the "legality and purity in all primaries and elections." O.C.G.A. § 21-2-31. Given the overwhelming evidence that the DREs are not reliable or secure, and cannot comply with the operational and security requirements of O.C.G.A. § 21-2-379.1 *et seq.*,² the Election Board has the statutory duty to repeal Rule 183-1-12-.01 immediately, and can do so on an emergency basis. In any event, the Board's Rule provides no defense to the mandates of state and federal law.

In sum, the Secretary and the State Election Board have the clear statutory authority and duty to discontinue the DRE voting systems and to order the use of hand-marked paper ballots.

B. Practical and Feasible Means for Using Paper Ballots

² See Second Amended Complaint ¶¶ 110-121 for details.

There are at least three feasible methods of conducting paper ballot elections in 2018. Each county board of elections should be permitted to choose the paper ballot system that best suits local needs for conducting a secure election in their jurisdiction.

1. Precinct optical scanning of paper ballots

- (i) Method: voters hand-mark paper ballots and insert the ballots into the Accu-Vote OS optical scanners of the type currently in use for paper ballots. Votes are tabulated by the optical scanners at the polling location after polls close, and the tabulated results are posted on the door of the polling place. Then, the tabulated results are securely transported from the polling location to the county election office by hand delivery of the memory cards and results tapes along with all balloting materials. Unofficial results can be immediately emailed from the polling place to the county election office using digital photos of the results tapes, while county officials await the election night hand delivery of the secured original records.
- (ii) Statutory authority: O.C.G.A. §21-2-483(a). This is the best overall solution, and is the method that Georgia used prior to the 2002 implementation of the DREs. Specific procedures are provided in Title 21, Chapter 2, Article 11 Part 5, and security requirements can be updated and strengthened by promulgation of Election Board Rules.

2. Central count optical scanning of paper ballots

- (i) Method: voters hand-mark paper ballots and cast them into traditional secured ballot boxes at the polling locations. After polls close, the locked boxes are securely transported to the county elections office for ballot counting and reporting using the currently-owned and state-approved Accu-Vote OS scanners. Vote totals for each precinct and the county would be consolidated by the county Elections Department and reported to the public and the Secretary of State using the current GEMS election management system. Although “precinct scan” (described in 1 above) is preferable from a security perspective, the central count method may be temporarily attractive to counties that are concerned about training enough precinct workers to use one scanner

in each polling place.

- (ii) Statutory authority: O.C.G.A. § 21-2-483(a). Specific procedures are provided in Title 21, Chapter 2, Article 11 Part 5, and security requirements can be updated and strengthened by promulgation of Election Board Rules

3. Traditional hand-counted paper ballots

- (i) Method: Voters hand-mark paper ballots, casting them in a traditional secured ballot box. The ballots are manually counted by teams of poll workers in the neighborhood precincts, typically within two hours of the closing of the polls. Unofficial results could be immediately transmitted by an emailed digital photo of the precinct tally sheets, to be immediately followed by Election Night hand delivery of the secured original tally sheets, ballots, and election records to the county Election Board. This is an easily implementable alternative, particularly for the May and July primaries in smaller population counties.
- (ii) Statutory authority: O.C.G.A. § 21-2-280. Numerous Georgia municipalities employ hand counted paper ballots routinely for all municipal elections with detailed procedures are provided by Title 21, Chapter 2, Article 11, Part 2.

In addition, in jurisdictions where optical scan equipment is used, and given the well-documented security risks associated with the Accu-Vote OS and GEMS election management system, it is imperative that, prior to programming for the 2018 elections, such components be thoroughly disinfected and determined to be free from any unauthorized software code. Trusted build copies of the approved software must be reinstalled on all machines after the machines have been fully examined or replaced. It is also imperative that robust post-election audits of the unofficial results be completed before the election results are certified.

The State has the equipment, supplies, software licenses and know-how necessary for all of these three alternatives. The paper ballots needed for these methods are already required to be printed for each precinct for use as mail-in ballots and provisional ballots. The counties merely need to increase the number of paper ballots ordered. A larger paper ballot print order will be a minimal cost, particularly when

compared to the cost of moving, storing, securing and setting up and taking down the DRE equipment.

As for the scanning equipment: the state owns approximately 1,000 Accu-Vote OS optical scanners used for counting mail-in and provisional ballots. The number of additional scanners needed, if any, will depend on which of the three methods various counties select. If additional scanners are required, other states and vendors have hundreds of surplus Accu-Vote OS machines that can be borrowed or rented inexpensively. Georgia already licenses and uses the software necessary for deployment of either of the optical scan methods, and election personnel in the county offices are already trained on the necessary equipment.

C. Sufficient Time Before Elections to Address the Problems

As you know, over the past eleven months, the Coalition Plaintiffs and other Coalition members have initiated numerous requests to Secretary Kemp and State Election Board Members to abandon the non-compliant DRE system and convert to paper ballots to ensure the security of Georgia's elections.³

Though these warnings and requests have not been heeded, there is still enough time to implement reasonable interim remedies. Virginia was faced with a similar election security issue in 2017. On September 8, 2017, Virginia's State Board of Elections decertified all DREs in the state because of concerns about the integrity of DRE voting systems.⁴ Within two months, on November 7, 2017, twenty-two Virginia

³Prior notices and demands include the following: May, 2017 Change.org citizens petition to use paper ballots for the June 20, 2017 6th Congressional District runoff election (see emails directed to T. Fleming in Secretary of State's Office); May 10, 2017 Georgia voters' request that Secretary Kemp re-examine the DRE voting system under the provisions of O.C.G.A. § 21-2-379.2, with technical documentation supporting the necessity of halting the use of the DRE system (see May 10, 2017 email to T. Fleming and W. Harvey of SOS office); May 17, 2017 Georgia voters' follow up request for re-examination of DRE voting system with additional supporting technical documentation of inadequate system security (see May 17, 2017 email to T. Fleming); May 19 and June 2, 2017 Georgia voters' additional follow-up requests for response on DRE system re-examination prior to June 20, 2017 election (see emails to T. Fleming); May 25, 2017 complaint and motion for temporary restraining order to prohibit the use of the DRE voting system and to require use of paper ballots in the June 20, 2017 runoff election (Fulton County Superior Court, Case No. 2017CV290630); July 3, 2017 litigation to challenge the use of DRE voting systems in Georgia (N.D. Ga., Case No. 17-cv-02989).

⁴<https://www.elections.virginia.gov/Files/Media/Agendas/2017/SBEResolutiondecertifyingDREs09-08-17.pdf>

counties had immediately and successfully converted to hand-marked paper ballots. In the case of Georgia, Coalition's demands alone have been outstanding for eleven months, giving officials more than adequate time to prepare for hand-marked paper ballot elections. Additionally, officials in the Secretary of State's office have acknowledged the compromised nature of the voting system since its reporting of the August 24, 2016 breach at Center for Election Systems, and no material action has been taken to mitigate the impact of the security failures on voting system components.

Though the above methods cure the constitutional and statutory infirmities that plague the current system, and would greatly enhance voter confidence, the State should consider in due course the best long-term hand-marked paper ballot technology. Temporarily using the currently owned Accu-Vote OS paper ballot system, and hand counts for smaller counties, will permit a more deliberate and phased-in adoption and implementation of a new paper ballot voting system, without undue time pressures driven by the urgent need to decommission the DRE units.

D. Audit of Voter Registration Database

It is undisputed that the State's entire voter registration database including Personally Identifiable Information ("PII") for over 6.5 million voters was unprotected and available on the Center for Election System server to anyone with an internet connection from at least August 24, 2016 until at least March 3, 2017. Additionally, on April 15, 2017, equipment and memory cards containing the entire state voter registration database, also including PII, was stolen and not recovered. Such exposure permitted almost unlimited opportunities for malicious actors to alter voters' registrations including eligibility for voting in certain contests. Voters whose data was disclosed have not been notified of this inappropriate disclosure despite the legal requirement to do so under O.C.G.A § 10-1-912. *See* Second Amended Complaint ¶¶ 146-153.

Further, Fulton County officials have acknowledged that there are "glitches" in the voter registration database programs that can cause voters to be disenfranchised, such as Fulton voter Brian Blosser. *See* Proposed Third Amended Complaint ¶ 152.

The November 6, 2018 general election is the first statewide general election scheduled after the data breaches and data theft were reported. The voter registration database should be responsibly and independently audited in advance of the general election to attempt to detect any malicious manipulation of the database that may cause voter disenfranchisement or disruption during the election. Voters should be notified of the known security breaches and asked to verify their voter registration on line well in advance of the election dates.

Roy E. Barnes
John F. Salter
April 16, 2018
Page 8 of 8

In sum, if the remedial action described above is initiated immediately, the Secretary and the State Election Board have sufficient time and resources to ensure that Georgia citizens have a far more reliable and secure election system in the upcoming primaries and general elections, which will greatly enhance voter confidence. We look forward to your immediate response, and welcome any questions you may have.

Sincerely,



Bruce P. Brown

cc: Cary Ichter
Robert A. McGuire, III
William Brent Ney
Marilyn R. Marks
Laura Digges
William Digges, III
Ricardo Davis
Megan Missett
David D. Cross
Halsey G. Knapp, Jr.

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Bruce P. Brown

Law

February 18, 2019

Vincent Russo
Robbins Ross Alloy Belinfante
Littlefield LLC
500 Fourteenth St. NW
Atlanta, Georgia 30318

Bryan P. Tyson
Strickland Brockingham Lewis LLC
Midtown Proscenium Suite 2200
1170 Peachtree St. NE
Atlanta, Georgia 30309

Re: HB316 and *Curling v. Raffensperger*

Dear Vincent and Bryan:

Initially, Cary, Rob and I look forward to working with you in this litigation. I'm writing with respect to our clients' views on the voting system provisions of the recently introduced HB316. To be clear: the electronic ballot marking devices ("BMDs") authorized by HB316 will not provide secure or auditable elections or resolve the issues raised in the litigation.

I have attached a letter from twenty-four of the nation's leading elections experts urging Georgia in the strongest possible terms not to deploy BMD's because they do not create election results that can be tested or audited. As the letter states: "BMDs share the pervasive security vulnerabilities found in all electronic voting systems, including the insecure, paperless DREs in current use statewide." In addition, "voter verification" of a BMD-market ballot is unreliable and sporadic, rendering elections conducted with BMD's "unauditable."

In her September 17 ruling in this case, Judge Totenberg wrote:

Transparency and accountability are, at the very least, essential to addressing the significant issues that underlie this case.

Curling v. Kemp, 334 F. Supp. 3d 1303, 1307 (N.D. Ga. 2018). HB316 provides neither basic transparency or accountability in a voting system. Her opinion further explained:

Suffice it to say, at this juncture, that national-and state-commissioned research-based studies by cybersecurity computer scientists and elections experts consistently indicate that an independent record of an elector's physical ballot is essential as a reliable audit confirmation tool.

334 F. Supp. 3d at 1309. As Professor Philip Stark, the nation's leading expert in post-election auditing, has warned, the proposed electronic BMDs do not provide an independent record that can serve as a "reliable audit confirmation tool."

Judge Totenberg concluded her decision as follows:

If a new balloting system is to be launched in Georgia in an effective manner, it should address democracy's critical need for transparent, fair, accurate, and verifiable election processes that guarantee each citizen's fundamental right to cast an accountable vote.

334 F. Supp. 3d at 1328. The experts agree that BMDs accomplish none of the essential needs that Judge Totenberg articulates, and that our litigation seeks.

We allege in the Third Amended Complaint that requiring touchscreen DREs "violates the voters' constitutional rights to have their votes recorded in a fair, precise, verifiable, and anonymous manner, and to have their votes counted and reported in an accurate, auditable, legal, and transparent process." The similar electronic touchscreen process of BMD voting has the same problems for the same fundamental reasons.

The electronic BMD provisions of this year's HB316 are almost identical to the electronic BMD provisions of last year's 2018-SB403, which the legislature wisely defeated. We alleged in the Third Amended Complaint that last year's SB403 "failed to address what is required to remedy the problem":

Crucially, though its proponents called the bill a "paper ballot" bill, SB403 did not require hand-marked auditable paper ballots. Instead, SB403 sought to authorize a new type of unverifiable electronic voting system technology that, while favored by Defendant Secretary of State Brian Kemp and the bill's sponsors, was roundly criticized by experts as an insecure, dangerously hackable, high-risk technology.

Vincent Russo and Bryan Tyson
February 18, 2019
Page Three

Third Amended Complaint, ¶ 12. The electronic BMD provisions of 2018-SB403 and 2019-HB316 are almost identical and neither begin to solve the problems identified in our lawsuit.

Additionally, although little has been said to date about our allegations of the violation of secret ballot constitutional guarantees, our clients and their experts are concerned that the systems under current consideration may include the ability to connect the voter to his ballot either at the scanner level cast vote record or at the BMD level printer, depending on which vendors' equipment is selected. We urge the Secretary's office and the State Board of Elections to fully explore the technology used in multiple components of systems under consideration to ensure that the anonymity of the ballot cannot be compromised.

In addition to multiple other allegations and portions of our claims, our plaintiffs sought relief "requiring the conduct in each case of post-election audits of paper ballots to verify the results reported by the tabulation machines." The paper ballots that are produced by the proposed BMD systems cannot be audited to verify the reported results.

We urge you to use your influence to persuade legislators to reject HB316 because it not good for Georgia voters (or taxpayers) and will not cure the constitutional deficiencies identified in the Third Amended Complaint.

Please let me know if you have questions or would like to discuss these issues.

Sincerely,



Bruce P. Brown

cc: Cary Ichter
Robert A. McGuire
David D. Cross
Halsey G. Knapp
Kaye Burwell

January 7, 2019

The Honorable Robyn Crittenden
Secretary of State Elect Brad Raffensperger
Rep. Barry Fleming
Members of the SAFE Commission
214 State Capitol
Atlanta, Georgia 30334 (via e-mail)

Dear Secretary Crittenden, Secretary Elect Raffensperger, and SAFE Commission Members:

We write to urge you to follow the advice of election security experts nationwide, including the National Academies of Sciences, the Verified Voting Foundation, Freedomworks, the National Election Defense Coalition, cyber security expert and Commission member Professor Wenke Lee, and the many states that are abandoning vulnerable touchscreen electronic voting machines in favor of hand-marked paper ballots as the best method for recording votes in public elections.

Our strong recommendation is to reject computerized ballot marking devices (BMDs) as an option for Georgia's voting system, except when needed to accommodate voters with disabilities that prevent them from hand-marking paper ballots. Hand-marked paper ballots, scanned by modern optical scanners and used in conjunction with risk-limiting post-election audits of election results, should be the standard balloting method statewide.

Although they are expensive and complex devices, computerized ballot markers perform a relatively simple function: recording voter intent on a paper ballot. Since there are no objective, quantitative studies of their benefits, acquiring BMDs for widespread use risks burdening Georgia taxpayers with unnecessary costs. Furthermore, BMDs share the pervasive security vulnerabilities found in all electronic voting systems, including the insecure, paperless DREs in current use statewide. These reasons alone should disqualify BMDs from widespread use in Georgia's elections, especially since there is a better alternative.

Hand-marked paper ballots constitute a safer and less expensive method of casting votes. Hand-marked paper ballots offer better voter verification than can be achieved with a computerized interface. A paper ballot that is indelibly marked by hand and physically secured from the moment of casting is the most reliable record of voter intent. A hand-marked paper ballot is the only kind of record not vulnerable to software errors, configuration errors, or hacking.

The SAFE Commission has heard testimony about voter errors in marking paper ballots and the susceptibility of paper ballots to tampering or theft. No method of balloting is perfect, but vulnerabilities in computerized marking devices, if exploited by hackers or unchecked by bad system designs, raise the specter of large-scale, jurisdiction-wide failures that change election outcomes. For example, with hand-marked paper ballots, voters are responsible only for their own mistakes. On the other hand, voters who use BMDs are responsible not only for

their own mistakes but also for catching and correcting errors or alterations made by a BMD which marks ballots for hundreds of voters. For this reason, well-designed hand-marked paper ballots combined with risk-limiting post-election tabulation audits is the gold standard for ensuring that reported election results accurately reflect the will of the people.

Voter verification of a BMD-market ballot is the principle means of guarding against software errors that alter ballot choices. Many BMDs present a ballot summary card to the voter for verification. The 2018 National Academies of Science, Engineering and Medicine Consensus Report *Securing the Votes: Protecting American Democracy*, which represents the nation's best scientific understanding of election security and integrity, states: "Unless a voter takes notes while voting, BMDs that print only selections with abbreviated names/descriptions of the contests are virtually unusable for verifying voter intent." Although advocates of touchscreen ballot marking devices claim that the human readable text ballot summary cards are "voter verifiable," the contrary is true: voter verified summary cards that contain errors (whether induced by hacking or by design flaws) are likely to be mistakenly cast, making a valid audit impossible. A post-election audit requires a valid source document, either marked directly by the voter or voter verified. Since voter verification of printed ballot summary cards (the source document) is sporadic and unreliable, elections conducted with most ballot marking devices are unauditabile.

While you may have been told that touchscreen systems are more "modern" devices, many of your peers and most election security experts have found this appeal to be based on a mistaken view that the voting public will naively accept new technology as a "step forward." We are intimately familiar with the hidden costs, risks, and complexity of these new technologies. We can assure you there is objective scientific and technical evidence supporting the accuracy of traditional, easily implemented scanned and audited hand-marked paper ballot systems. We urge you to recommend such a system as the safest, most cost-effective, and transparent way of conducting future elections.

If we can be of help in providing more information, we hope you will feel free to call upon us.

Sincerely,

Dr. Mustaque Ahamad
Professor of Computer Science,
Georgia Institute of Technology

Dr. Andrew Appel
Eugene Higgins Professor of Computer
Science
Princeton University

Dr. David A. Bader, Professor
Chair, School of Computational Science and
Engineering
College of Computing
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Matthew Bernhard
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Verified Voting

Dr. Matt Blaze
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Dr. Duncan Buell
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Engineering
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Dr. Richard DeMillo
Charlotte B. and Roger C. Warren Professor
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Hoover Institute and Freeman Spogli Institute
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David L. Dill
Donald E. Knuth Professor, Emeritus, in the
School of Engineering and Professor of
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Founder of VerifiedVoting.org

Dr. Michael Fischer
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Adam Ghetti
Founder / CTO
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Susan Greenhalgh
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National Election Defense Coalition

Dr. Candice Hoke
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Harri Hursti
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Dr. David Jefferson
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Dr. Douglas W. Jones
Department of Computer Science
University of Iowa

Dr. Justin Moore
Software Engineer
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Dr. Peter G. Neumann
Chief Scientist
SRI International Computer Science Lab
Moderator of the ACM Risks Forum

Dr. Ronald L. Rivest
Institute Professor
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Dr. Aviel D. Rubin
Professor of Computer Science
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Dr. John E. Savage
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Dr. Barbara Simons
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Dr. Eugene H. Spafford
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Affiliations are for identification purposes only. They do not imply institutional endorsements.