

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

JILL STEIN, et al.,	:	
Plaintiffs,	:	
v.	:	Civ. No. 16-6287
	:	
KATHY BOOCKVAR,	:	
<i>in her official capacity as Secretary of the</i>	:	
<i>Commonwealth of Pennsylvania, et al.,</i>	:	
Defendants.	:	

Diamond, J.

April 29, 2019

MEMORANDUM

In moving to enforce the Agreement settling her 2016 lawsuit, failed presidential candidate Jill Stein asks me to bar the use of almost 4,000 voting machines, thus making it impossible for Philadelphia to participate in the 2020 presidential election. This is of a piece with the 2016 action itself: Stein’s eleventh-hour voting machine “hacking” allegations and request for a recount that would have disenfranchised some six million Pennsylvania voters. In both instances, Dr. Stein publicly announced that she seeks to promote election integrity. Yet, the Commonwealth suggests that she seeks to promote only herself. Pennsylvania’s computer expert testified credibly in 2016 that Stein’s allegations “are approximately as likely as the fact that androids from outer space are living amongst us and passing as humans.” (12/6/16 Hr’g Tr. 63:23-64:9.) Her allegations now—that the challenged voting machines are unreliable and thus violate the Settlement Agreement—are as baseless and irrational. I will deny her Motion.

I. PROCEDURAL HISTORY

Dr. Stein and several Pennsylvania voters filed the instant Motion on November 26, 2019—almost a year after this case settled. (Doc. No. 112). Over Stein’s opposition, I granted the Philadelphia Board of Elections’ and the City’s Motion to Intervene as Defendants (although I will refer to all Defendants as the Commonwealth). (Doc. Nos. 131, 136 ¶ 2); Fed. R. Civ. P. 24(a).

In the same Order, I identified factual issues to be addressed at an evidentiary hearing. (Doc. No. 136 ¶ 4.) Following a telephone conference with the Parties, I decided various motions and found that the Commonwealth had made a *prima facie* showing that Stein’s delay in filing the instant Motion was unwarranted and prejudicial. (Doc. No. 161.) I also set out procedures for the hearing that began on February 18. (Id.) The Parties introduced documents and called witnesses, including the product manager of the ExpressVote XL (the challenged voting machine), who demonstrated its use. At the hearing’s conclusion on February 21, 2020, I asked the Parties to submit proposed findings and conclusions. The matter has been fully briefed. (Doc. Nos. 180 & 182.)

II. LEGAL STANDARDS

I have jurisdiction to enforce the terms of the Settlement Agreement. (SA ¶ 13; see Dismissal Order ¶ 3, Doc. No. 110); Kokkonen v. Guardian Life Ins. Co., 511 U.S. 375, 381 (1994). “Motions for the enforcement of settlement agreements resemble motions for summary judgment, and courts employ a similar standard of review.” Orthophoenix, LLC v. Stryker Corp., 2017 WL 1197675, at *4 (D. Del. Mar. 28, 2017); see Tiernan v. Devoe, 923 F.2d 1024, 1031–32 & n.5 (3d Cir. 1991); Myers v. AutoZoners, LLC, 2017 WL 6316586, at *7 (W.D. Pa. Dec. 11, 2017). I “must treat all of the non-movant’s assertions as true, and, ‘when these assertions conflict with those of the movant, the former must receive the benefit of the doubt.’” Orthophoenix, 2017 WL 1197675, at *4 (D. Del. Mar. 28, 2017) (quoting Tiernan, 923 F.2d at 1032). I must “view the facts in the light most favorable to the nonmoving party and draw all reasonable inferences in that party’s favor.” Myers, 2017 WL 6316586, at *7 (quoting Adreoli v. Gates, 482 F.3d 641, 647 (3d Cir. 2007)). Enforcement is appropriate only if “there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(a).

III. BRIEF OVERVIEW

In settling the Stein lawsuit, the Commonwealth emphasized that it was simply implementing the decision it had made well before: to “replace [Pennsylvania’s] aging voting equipment in the next few years” with “modern machines [that] will include a paper record” the voter could review. (Wolf Press Release, Jx 2.) Stein’s lawsuit had nothing to do with that decision, which was part of a national movement away from Direct Recording Electronic voting machines (“DREs”) that record votes only electronically. When the Settlement was negotiated, the sole concern expressed by Stein’s lawyers or “expert” was that the Commonwealth might extend its use of DREs (which the Commonwealth had already committed to retiring). Accordingly, in entering into the Agreement, Stein understood that Pennsylvania was considering for statewide approval—“certification” under state law—machines which maintained a paper record that could be reviewed by the voter and audited (if necessary). Among them was the ExpressVote XL.

In the eight months following the Settlement, Stein expressed no concern as the Commonwealth certified various machines which, in turn, were purchased by counties throughout Pennsylvania. Only a year after settling did she allege that the XL did not comport with the Settlement Agreement, although she repeatedly changed the basis for her objection. By then, however, Philadelphia had already purchased some \$30 million of these machines. Two smaller counties had also purchased XLs. The credible evidence shows that the XL is exactly the kind of voting machine contemplated by the Agreement, and that Stein has not shown that I should grant her belated Motion.

IV. RELIEF REQUESTED

Like her challenge to Philadelphia’s voting machines, Stein’s request for relief continues to “evolve.” Stein initially urged that because the XL does not comport with the Agreement, I

should order its immediate decertification. (Pls.’ Mot. to Enforce 2.) Although she never amended her Motion, she subsequently altered her request for relief. Likely realizing that the XL’s immediate decertification would make it impossible for Philadelphia to conduct its 2020 primary election (which the Commonwealth has moved from April 28 to June 2), she suggested in her Reply Brief that I might order the Commonwealth to decertify the machines after the primary. (Pls.’ Reply Br. 15.) Given the compelling evidence that Philadelphia could not replace the XLs in time for the November 2020 presidential election, however, she again has changed her request for relief, this time suggesting that “the appropriate course is not to deny the motion, but to order decertification for 2021.” (Pls.’ Proposed Conclusions of Law 22.) Remarkably, in the next sentence, she reverts to her previous request, urging me to “order the Secretary of the Commonwealth to decertify the ExpressVote XL in time for the November 2020 General Election.” (Id.)

Dr. Stein’s inability to decide what relief she wants underscores her Motion’s lack of factual or legal basis.

V. FACTUAL FINDINGS

From the outset, the Parties disputed “material facts concerning the . . . terms” of the Settlement Agreement. Tedesco Mfg. Co.v. Honeywell Int’l, Inc., 371 F. App’x 316, 319 (3d Cir. 2010). Accordingly, I conducted the February 2020 hearing. See Leonard v. Univ. of Del., 204 F. Supp. 2d 784, 786 (D. Del. 2002). Three of the four witnesses Stein called were adverse—employed by the Commonwealth or the City. Her only witness was computer expert, J. Alex Halderman, PhD, whose ill-considered theories formed the basis of both Stein’s original Complaint and the instant Motion to Enforce. I largely discredit Halderman’s testimony and credit the testimony of the other witnesses called both by Stein and the Commonwealth: Secretary of State Kathy Boockvar; Department of State Chief Counsel Timothy Gates; DOS Executive Deputy

Chief Counsel Kathleen Kotula; Dean Baumert of Election Systems & Software (the company that manufactures and markets the XL); City of Philadelphia Procurement Commissioner Monique Nesmith-Joyner; and Executive Director of the Philadelphia Board of Elections Joseph Lynch. Based on their testimony and related evidence, I make the following findings. Because the record shows that Dr. Stein was and remains the moving force behind her Motion—while her co-Plaintiffs have played no discernable role—I have referred only to her throughout.

A. 2016 Litigation

On December 5, 2016—a week before Pennsylvania’s deadline to certify its presidential electors—Dr. Stein and voter Plaintiff Randall Reitz filed a Complaint, alleging statewide voter fraud caused by massive “hacking” of Pennsylvania’s DRE Machines. (See, e.g., Pls.’ Mem. of Law in Support of PI Mot. 27, Doc. No. 5 (“Pennsylvania uses antiquated, vulnerable voting machines easy to hack”); id. 29 (“The right to vote would be meaningless if it meant only the right to *cast* a vote on Election Day, with no assurance that the vote was accurately *counted*.”).) Stein sought, *inter alia*, invalidation of significant parts of Pennsylvania’s Election Code, and a mandatory injunction: (1) requiring the Commonwealth Secretary to recount the votes cast in the November 2016 presidential election; and (2) allowing Stein to conduct forensic examinations of Pennsylvania’s DRE voting machines. (Doc. No. 1.) Like the relief she seeks now, her requested relief in 2016 also “evolved”: during the December 9, 2016 evidentiary hearing, Stein narrowed her request, ultimately seeking “a hand recount of all paper ballots of one precinct in each of the seventeen paper-ballot Counties and a forensic review of the election management systems of six Counties, including Philadelphia.” (PI Mem. Op. at 8, Doc. No. 55.) Granting even this narrowed request would have precluded timely certification of Pennsylvania’s presidential vote.

I refused her injunction request on five alternative grounds. (Doc. Nos. 54 & 55.) Threshold defects—including Stein’s lack of standing and her prejudicial, unexplained delay—

barred relief. Moreover, Stein showed neither any likelihood that she would succeed on the merits of her claims, nor any threat of immediate, irreparable harm. Indeed, Stein presented no evidence that any hacking had actually occurred. The only part of Dr. Halderman’s 2016 testimony that I credited was his admission “that he had ‘no evidence’ that any voting machine was hacked, and that the election outcome was ‘probably not’ the result of a hack.” (PI Mem. 25, 28 (quoting 12/9/16 Hr’g Tr. 25:22–26:1, 26:19–24).)

Stein did not appeal my ruling. On February 14, 2017, she filed an Amended Complaint, rehashing Dr. Halderman’s discredited hacking theories, and alleging violations of her First and Fourteenth Amendment rights. Basing her claim to standing on her failed candidacy, she again sought a forensic review of Pennsylvania’s DRE machines, and again asked me to invalidate the recount provisions of the Pennsylvania Election Code. (Amended Compl., Doc. No. 71.) The gravamen of Stein’s “hacking” charge was that DREs are vulnerable because they did not produce a “paper trail” to identify malfeasance or irregularities. (*Id.* ¶¶ 1–2; *see id.* ¶ 24 (“Pennsylvania . . . relies disproportionately and primarily on electronic voting with no paper trail.”).)

Although Stein sought to add new Plaintiffs and allegations, her Amended Complaint had many of the same defects as her initial pleading. In moving to dismiss, the Commonwealth argued persuasively that the lead Plaintiff had no standing: Dr. Stein was not registered to vote in Pennsylvania; received less than 1% of Pennsylvania’s vote in the 2016 presidential election; and conceded that granting the relief she requested would not result in her winning the Pennsylvania presidential vote. Although I was inclined to dismiss her from the case, “erring on the side of caution at this early stage, I conclude[d] that Dr. Stein’s allegations, generously read, are sufficient to confer standing” with respect to some of her claims. (Order on Mot. to Dismiss 17, Doc. No. 98.) I did, however, dismiss the bulk of Stein’s Amended Complaint. Remarkably, in the instant

Motion, Stein states that I had “denied [the Commonwealth’s] Motion to dismiss in substantial part.” (Pls.’ Mot. to Enforce 1.)

B. The Commonwealth’s Initiative

In 2017, the Department of State announced an “Initiative” to replace its DREs with machines that “conform to enhanced standards concerning resiliency, auditability[,] and security.” (Directive Concerning the Purchase of Electronic Voting Systems, Jx 1.) In February 2018—nine months before Stein’s lawsuit settled—DOS thus stated that Pennsylvania would certify only voting machines that “employ[] a voter-verifiable paper ballot or a voter-verifiable paper record of the votes cast by a voter.” (*Id.*) In crafting the Initiative, the Commonwealth relied on “Securing the Vote Report,” prepared by election experts, who urged use of machines that create a paper ballot readable by people that are also countable by machine or by hand. (2/18/20 Tr. 86:25–87:22, 90:7–16; National Academies of Sciences, Engineering & Medicine, Securing the Vote: Protecting American Democracy, Dx F.) Governor Wolf stated that “[c]ounties across Pennsylvania are preparing to replace their aging voting equipment in the next few years” with “modern machines [that] will include a paper record.” (Wolf Press Release.) In April 2018, DOS directed all counties—which, under state law, are responsible for procuring “certified” voting equipment—to purchase voting machines that comport with the Initiative’s “voter-verifiable paper record[]” requirement. (Boockvar Decl. ¶ 15, Dx Y.) This would substantially overhaul voting in Pennsylvania, where, as of the 2016 election, 50 of 67 counties (including Philadelphia, its largest) used DREs. (2/18/20 Tr. 62:11–15.)

The Initiative was part of a nationwide movement to replace outmoded voting machines with systems that employ paper records to facilitate post-election auditing. (Marks Testimony at 1–2, Jx 13 (discussing, *inter alia*, Securing the Vote)). The Commonwealth also issued a Directive to vendors detailing the requirements—including use of a “voter-verifiable paper record”—that

their systems must meet to be certified for use in Pennsylvania. (Attachment E to 6/12/18 Directive Concerning Electronic Voting System Examinations by DOS, Jx 7.)

There are two types of voting machines available that meet those requirements: (1) “hand-marked ballot systems,” by which the voter completes a ballot by hand and feeds it “into a scanner”; and (2) “ballot-marking devices”—machines that “print a paper and the paper is the official vote of record.” (2/18/20 Tr. 63:5–13.) DOS publicly releases monthly “Poll Book” Reports, indicating which voting systems (or “suites,” as the Commonwealth describes groups of related machines) are certified, and the status of those under review. (2/18/20 Tr. 285:11–86:21; see, e.g., 9/21/18 Pennsylvania Voting System & Electronic Poll Book Report, Jx. 12.)

C. Initial Settlement Communications

Immediately after I dismissed most of Dr. Stein’s Amended Complaint, the Parties began settlement discussions. Mr. Gates served as the Commonwealth’s primary negotiator, assisted by his deputies, Ms. Kotula and John Hartzell, and Deputy Attorney General Sue Ann Unger. (2/18/20 Tr. 59:9–10, 211:6–18.) Stein’s lead counsel, Ilann Maazel, and his associate negotiated for Stein. (Id. 175:7–13.) Dr. Halderman provided technical advice and served as Stein’s “designee for purposes of” monitoring Pennsylvania’s voting system certifications. (2/19/20 Tr. 3:21–22, 84:16–25.)

The Commonwealth would settle only if its “central goal” was met: to resolve this litigation “consistent with” Pennsylvania’s “path” toward replacing its aging DREs “with new systems that employed a voter-verifiable paper ballot system.” (2/18/20 Tr. 56:17–58:7; see id. at 210:7–12 (Gates) (“And the idea was, if we can settle the case for the Initiative and the things that [the Commonwealth was] already doing, why not? Why not try to settle the case?”).)

Secretary Boockvar instructed her negotiators to “provide to the Plaintiffs information that would make it clear what [the Commonwealth’s] path entailed.” (2/18/20 Tr. 60:3–5.) Gates did

just that. (Id. 179:21–22; see id. 179:22–180:1 (“I think we had an opportunity to settle this case because, one, we are getting rid of the DRE machines, which I know that [Plaintiffs] hate. And, two, we are moving into systems that provide a voter-verifiable record that can be audited.”); id. 210:7–12.)

Before the first settlement conference, Ms. Unger informed Dr. Stein about the Commonwealth’s “path.” (9/28/18 Unger Email, Jx 14.) Attached to Unger’s email were:

- The September 21, 2018 Poll Book Report, which listed the voting system suites under consideration along with their testing status. (9/28/18 Poll Book Report, Jx 12.)
- DOS Commissioner Marks’s February 9, 2018 email to the county boards of election advising of the DOS’s Initiative to move from DREs to machines that employ “a voter verifiable-ballot or a voter-verifiable paper record of the votes cast by a voter.” (9/28/18 Unger Email; see 2/9/18 Marks Email, Jx 1.)
- Marks’s April 12, 2018 email and press release, advising that Initiative compliant voting machines must be selected by December 31, 2019, “and preferably in place by the November 2019 general election.” (4/12/18 Marks Email, Jx 5.)
- DOS’s revised Directive to vendors advising, *inter alia*, that the Commonwealth would certify only machines that employ “a voter-verifiable paper ballot or a voter-verifiable paper record of the vote cast by a voter.” (9/28/18 Unger Email; see 6/12/18 Directive Concerning Electronic Voting System Examinations by DOS, Jx 7.)
- Marks’s September 25, 2018 testimony to the Senate State Government Committee. (9/25/18 Marks Testimony, Jx 13.)

The Poll Book that Ms. Unger sent Stein provided that the Commonwealth had tested ES&S’s EVS 6.0.0.0/6.0.2.1—the “suite” containing the ExpressVote XL—between September 24 and 28. (See 9/21/18 Poll Book at 1.)

On October 5, 2018, the Parties spoke about the listed voting systems that the Commonwealth was considering for certification. (2/18/20 Tr. 215:5–216:8.) Mr. Maazel seemed “very please[d]” with the Commonwealth’s direction, but said he wanted to send the list to

Halderman, who would perform a “lemon check” to confirm that the Commonwealth was not considering DREs for certification. (Id. 215:19–216:18.)

Mr. Maazel responded to the Unger email on October 9, 2018, requesting “a more granular list” of machines to ensure that there were no DREs among them, and providing written “feedback” from Dr. Halderman. (10/9/18 Maazel Email, Jx 20.) Halderman had reviewed the voting systems under consideration (including the ExpressVote), noting that he did not “*disapprove* of them in their entirety. All of [the systems] (that use paper ballots) can be used with reasonable security if implemented with voter-verified paper ballots and manual audits.” (10/9/18 Maazel Email (emphasis in original).) Halderman stated that Pennsylvania should “certify [the voting systems] with restrictions that prohibit . . . dangerous functions.” (Id.) By this, Halderman—referring to an article by his mentor, computer science professor Andrew Appel—meant that although the ES&S ExpressVote “can work as traditional ballot marking devices,” it could be configured to “defeat the purpose of the paper trail” when “it is set up to print the *ballot* but not show it to the vote[r]” (Id. (emphasis added) (discussing Appel, Serious Design Flaw in ESS ExpressVote Touchscreen: “Permission to Cheat,” Jx 21 (explaining in detail the ExpressVote “ballot-marking device” and its “paper ballots,” and linking to a video of an ExpressVote ballot-marking machine in operation)).) Halderman thus knew that the ExpressVote XL employed a summary card (which he called a “ballot”) and that it tabulated votes by scanning barcodes on the card. (Id.; 2/19/20 Tr. 31:5–20, 52:3–22, 99:9–17.)

D. Settlement Conference

Magistrate Judge Rice conducted the conference on October 11, 2018, which was attended by Mr. Maazel and his associate, Secretary Boockvar, Mr. Gates, Ms. Kotula, and Mr. Hartzell. (Fact. Stip. ¶¶ 29–30.) In her settlement memorandum submitted to Judge Rice before the conference, Stein set out her demands: (1) that Pennsylvania move from DREs to “voting machines

with paper ballots”; and (2) that “Pennsylvania adopt risk-limiting audits.” (Plaintiffs’ 9/26/18 *Ex Parte* Settlement Memo, Jx 23, at 2.) Stein acknowledged the Commonwealth’s “process of updating its voting systems.” (*Id.*) Indeed, after the Secretary “communicated to the Plaintiffs” the exact “path that [the Commonwealth was] already on,” the Parties “reached agreement based on the common understanding of those terms.” (2/18/20 Tr. 150:23–24; *id.* 150:25–151:1.) As Secretary Boockvar described:

It was completely agreed upon that the path we were on, which again involved ballot-marking devices and hand-marked paper ballots, both were included as part of the path, and that as long as there was a voter-verifiable paper record that was auditable, reviewable by the voter before they cast their vote and auditable after the fact, that there was no disagreement whatsoever about those terms.

(*Id.* 100:2–9.) Secretary Boockvar credibly explained that the Commonwealth’s insistence on a “ballot” that comprised a “voter-verifiable paper record” were one and the same and of critical importance to Pennsylvania. Indeed, the Commonwealth would not have settled without Stein’s agreement to that path. (*Id.* 105:21–106:19.)

After the conference, Stein drafted a term sheet, in which she stated that the Commonwealth’s machines must produce “paper ballot” so that there would be a “voter-verifiable record of each vote . . . capable of supporting a robust pre-certification audit.” (Term Sheet for Settlement, Jx 24 ¶ 2; 2/18/20 Tr. 166:8–21.) Not only were these Stein’s primary concerns, they comprised her only concern: eliminating DREs, which did not allow voter-verification with a paper record and so could not reliably support an audit. Stein, her negotiators, and her expert designee thus had no interest in limiting the Commonwealth to machines that create a paper record listing all contest options or those that do not employ barcodes.

The Commonwealth added a choice of law provision to the term sheet, and replaced the phrase the “[t]he Secretary will require each county in Pennsylvania to implement these new voting

systems by the 2020 primaries” with the phrase “[t]he Secretary *will continue to direct* each county in Pennsylvania to implement these new voting systems by the 2020 primaries.” (Revised Term Sheet for Settlement, Jx. 25 ¶ 2 (emphasis added).)

The Secretary deemed non-negotiable the “will continue to direct” language, because it tied the Settlement Agreement to the “path [the Commonwealth] had already set.” (*Id.* 58:9–11.)

The Parties executed the Agreement on November 28, 2018.

E. The Settlement Agreement

The Parties dispute the following provisions:

The Secretary will only certify new voting systems for use in Pennsylvania if they meet these criteria:

- a. The ballot on which each vote is recorded is *paper*³;
- b. They produce a *voter-verifiable record of each vote*; and
- c. They are capable of supporting a robust precertification auditing process.

The Secretary will continue to direct each county in Pennsylvania to implement these voting systems by the 2020 primaries, so that every Pennsylvania voter in 2020 uses *a voter-verifiable paper ballot*.

(Settlement Agreement at 2, ¶¶ 2–3, Jx 30.) In footnote 3, the Parties explained what paper ballot did not mean:

Footnote 3: A *VVPAT receipt* generated by a DRE machine *is not a paper ballot*.

Like Mr. Maazel’s request for “granular” information and Halderman’s “lemon check,” this footnote reflected Stein’s goal: the elimination of DREs, which (she believed) could be subject to vote tampering because they did not provide a voter-verifiable paper record of the votes cast. Footnote 3 thus also disqualifies DREs that create paper receipts.

The Commonwealth tartly notes that Stein announced the Settlement “with great fanfare” and “celebration.” (Defs.’ Opp’n 1, 2; 2/19/20 Tr. 143:24–144:6.) Indeed, Stein boasted to her Twitter following: “Huge victory for election integrity! We just settled our #recount lawsuit in Pennsylvania for a guarantee that PA will use paper ballots by 2020” (Stein Tweets at 1, Dx N.) Stein’s “Communications Director” Dave Schwab lauded the Settlement Agreement (knowing it would allow ballot-marking devices that tallied votes by barcode). (*Id.* at 4.) Mr. Maazel also touted the Settlement Agreement the day after it was signed, declaring on his firm’s website: “We will be watching closely to ensure Pennsylvania implements every one of [the Agreement’s] important election reforms.” (Emery Celli 11/29/18 Press Release, Jx 33.)

In taking credit for Pennsylvania’s replacement of its DREs, Stein, her Communications Director, and her counsel ignored that the Commonwealth would have made the same equipment changes in the absence of the Stein litigation. Indeed, the litigation appears to have created a single benefit that would not otherwise have been conferred: the payment of \$150,000 to Stein’s lawyers. (SA ¶ 9.)

F. Pennsylvania Certifies the ExpressVote XL

During the February 2020 hearing, Mr. Baumert, who supervised the XL’s design and development, extensively discussed and demonstrated the machine’s many features. (*See* 2/19/20 Tr. 190:19–221:5.) Although each county chooses and procures its own voting machines, it must select voting machines certified by the Secretary of the Commonwealth and the United States Election Assistance Commission. 25 P.S. § 2621(b); (2/18/20 Tr. 11:18–23.) **Because Dr. Stein charged that ES&S’s ExpressVote XL violates the Settlement Agreement, I ordered the Parties to bring an actual XL machine to the February 2020 hearing. (1/20/20 Tr. 21:7–22:2.) I closely examined the XL—which comprises a large touch screen on wheels, with a clear panel through which the ballot can be read:**



Fig. 1 ExpressVoteXL (Px 1012.)

The machine is reliable and easy to use. It is a hybrid device, combining ballot-marking and tabulating/scanning functionalities within a single system. (2/18/20 Tr. 105:1–6; 2/19/20 Tr. 186:22–187:6.) The voter first inserts a blank card into the slot to the right of the screen; this prompts the XL to load the appropriate ballot, which appears on the 32-inch touchscreen. (2/19/20 Tr. 186:25–187:6.) After she makes her selections, the machine prints them, producing a summary card:

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COMMONWEALTH OF PENNSYLVANIA/COMMONWEA
OFFICIAL MUNICIPAL ELECTION BALLOT-610
12/19/2019
PRECINCT 1, PRECINCT 1
-----
[Barcode]
-----
PRESIDENT/VICE PRESIDENT OF THE UNITED
STATES-----
                REP KIMBERLY JONES
UNITED STATES SENATOR-----
                REP JAMES COLLINS
ATTORNEY GENERAL-----
                REP MORGAN WEST SR.
GOVERNOR/LIEUTENANT GOVERNOR-----
                REP ARNOLD KRILL
JUDGE OF THE SUPERIOR COURT-----
                W/I:WAYLON DALTON ←
REPRESENTATIVE IN CONGRESS 5TH
DISTRICT DISTRICT 5-----
                REP OTTO PERRY
REPRESENTATIVE IN THE GENERAL ASSEMBLY
21ST DISTRICT DISTRICT 21-----
                REP RICHARD LAWTON
JUDGE OF THE COURT OF COMMON PLEAS----
                REP STEPHEN HARRICK
                REP GERALD DANSON
                REP SHIOMO ARCHIBALD
                REP DELORES DEVAN
                REP VIC POWERS
                REP CHARLIE NEIL
                REP STEVE WEST
                REP JOE PETERS
                REP MARY DANIEL
                REP JOHN ROY
                REP JIM YOUNG
                REP JACK WILLIAMS
                REP STEPHEN MILLER
                REP SHIRLEY HENNING
                REP SANDRA MILLS
SCHOOL DIRECTOR DISTRICT 1-----
                REP GREG ORTIZ
                REP ADAM BILLIARD
                DEM SANDY WOODS
SCHOOL DIRECTOR DISTRICT 1-----
                REP RICHARD FREER
                REP JOHN FEDOR
                REP KATE BILLIARD
COUNTY COMMISSIONER-----
                DEM RAJ SINGH
                W/I:KIRA HILL ←
COUNTY COMMISSIONER DISTRICT 1-----
                REP MARY SHAPIRO
                W/I:KIRA HILL ←
ELECTION JUDGE-----
                W/I:JEREMY WADE ←
BOROUGH COUNCIL-----
                REP ALISSA SHULTZ
                REP ZACHARY WILLS
                REP TANYA CULT
SUPREME COURT RETENTION-----
                YES
SUPERIOR COURT RETENTION-----
                YES
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Fig. 2, ExpressVote XL Summary Card (Jx 57.)

Immediately before printing, the ExpressVote XL saves the votes from the touchscreen in its “temporary memory.” (2/19/20 Tr. 277:20–21.) The machine then compares what appears on

the screen (i.e. the voter's selections) with the information on the summary card, ejecting the card and displaying an error message in the event of a mismatch. (Id. 278:9–279:4.)

The voter views the card, which is easy to read, through the pane to the right of the touchscreen. At the top of the card is a “master” barcode recording information about all the voter's selections. Immediately below are smaller barcodes that correspond to individual races or ballot measures. Below the smaller barcodes is the text listing the voter's selections.

After reviewing the ballot, the voter decides whether to “spoil” or cast her vote. If she opts to spoil, the machine ejects the printed card. If the voter changes her mind and decides to cast the vote, the card can be reinserted into the machine or into another XL at the polling location. The voter cannot alter an ejected card because the XL will not print over the initial selections. For each ballot cast, the XL scans the barcodes, recording the votes in its permanent memory, and deposits the card into its ballot box.

The XL has many security features. The machine's design makes it very difficult to access the hard-drive and ballot box while the XL is in use. (Id. 194:22–195:5.) The machine recognizes only a special type of USB stick, onto which ES&S loads its election management system. (Id. 198:11–13.) A would-be hacker must have such a stick to meddle with the XL, which will not recognize generic drives, keyboards, or other devices. When the election choices are uploaded to the XL, it confirms that “the data has not been changed since it was sent from the . . . specific election management system.” (Id. 198:19–24.) The data is then encrypted and stored by the machine. As it is used, the data is unencrypted and placed in temporary memory. (Id. 199:3–7.)

The XL's software itself has a “number of checks” that ensure vote integrity. (Id. 226:7–19.) These protect data from being “intercepted and changed,” and ensure that what the machine's

output matches the vote cast. (*Id.*) The software checks complement “the physical controls of the machine,” along with chain of custody safeguards.

On November 12, 2018 the EAC certified that the group of voting machines referred to as the ES&S “suite”—including the XL—meets federal standards. (U.S. EAC, Certificate of Conformance at 2, Jx 28 (“ExpressVote XL is a hybrid paper-based polling place voting device that provides a full-face touchscreen vote capture that incorporates the printing of the voter’s selections as a cast vote record, and tabulation scanning into a single unit.”).) The EAC made its certification publicly available the day it issued. (2/18/20 Tr. 105:1–14.) The XL thus had to pass the EAC’s “million and a half mark test”: marking that many ballots without a mismatch between the tabulated and printed votes. (2/19/20 Tr. 225:10–226:3.) The EAC also tested and approved the XL’s software security. (*Id.* 228:13–229:14.)

Acting DOS Secretary Robert Torres certified the XL and other machines in the ES&S suite on November 30, 2018. (Fact. Stip. ¶ 43; ExpressVote Certification Report, Jx 34.) The Certification Report was publicly posted on DOS’s website. (Fact. Stip. ¶ 44; 2/18/20 Tr. 240:9–13.) Only voting systems that comply with state law requirements may be certified. See 25 P.S. § 3031.7. The ExpressVote suite thus qualified in six areas:

- (1) Source Code Review;
- (2) Documentation Review;
- (3) System Level Testing;
- (4) Security/Penetration Testing;
- (5) Privacy Analysis; and
- (6) Usability Analysis.

(ExpressVote Certification Report at 10.) DOS also conducted follow-up functionality and security examinations specific to the XL. (*Id.* at 20–21.) These tests (which took over four days) were open to the public and announced in DOS’s Poll Report Books. (2/18/20 Tr. 261:3–21.) DOS widely publicized the testing results and certification—immediately posting the full Report and issuing various press releases. (*Id.* ¶ 44; 2/18/20 Tr. 153:24–154:5.) Other states—including New Jersey, Delaware, California, and Texas—have certified the XL.

Although Stein offered no evidence as to when she learned of the XL’s Pennsylvania certification, she certainly knew by the time of the certification’s public announcement, given her knowledge during settlement negotiations that the XL was very close to certification, her lawyer’s “watching closely” announcement, and her expert’s “feedback” that he did not object to the machine’s certification and his obligation to monitor the certification process. (See also Stein Tweets at 4 (“[U]nder the terms of the settlement, the Stein campaign will be appointing election security expert J. Alex Halderman to observe and provide input to Pennsylvania as they proceed to evaluate and certify new voting machines.”) (Dave Schwab).) Indeed, Dr. Halderman acknowledged that in September 2018 he was provided with the Poll Book listing the machines the Commonwealth was examining, which stated that the ExpressVote’s testing was scheduled for the week of September 24. (2/19/20 Tr. 87:21–88:20, 92:13–93:5.) The Poll Book provided a hyperlink to a page providing more information about the ExpressVote machines—including the XL—under consideration. (Id. 89:4–16.) Given Halderman’s role as Stein’s only expert advisor, his sworn testimony that he did not click on the hyperlink to learn more about the Commonwealth’s prospective machines simply is not credible. (Id. 89:1–3.)

As certified by the Commonwealth, the human-readable text on the ExpressVote XL’s paper card is “the official vote of record. (2/18/20 Tr. 91:14–15.) In the event of an audit or recount, “the words [on the paper cards] would be compared to the tabulated results from election night.” (Id. 91:15–17 (Boockvar).) Pennsylvania prohibited the “permission to cheat” function—Halderman’s sole concern. (10/9/18 Maazel Email.) The XL thus displays the printed ballot to the voter before she can finalize her vote. The Certification Report refers to the paper that the voter verifies as a “vote summary card,” not as a paper ballot. (ExpressVote Certification Report at 5 (“The voter can print the vote summary card once they are ready to cast the vote.”).) Secretary

Boockvar credibly explained that in its Certification Reports the DOS often borrows terminology employed by manufacturers. (2/18/20 Tr. 17:17–18:2; see ES&S Website Excerpts, Px 1012 (“The *vote summary card* serves as an audit trail for election officials.” (emphasis added)).)

G. A Belated Challenge to the XL

On July 16, 2019—some nine months after the Commonwealth certified the XL—a group of Pennsylvania voters, represented by three advocacy organizations, petitioned Secretary Boockvar to reexamine the ExpressVote XL. (Fact. Stip. ¶ 71; Petition for Reexamination, Jx 42.) The voters alleged that the XL violates Pennsylvania law. They criticized a design feature—the “printhead issue”—by which the printed, verified ballot must pass by the thermal printer en route to the ballot box. They theorized that a “malfunctioning or manipulated ExpressVote XL could add, modify, or invalidate votes *after* the voter has viewed, confirmed, and cast her ballot.” (Petition for Reexamination at 1.) The voters also contended that “the ExpressVote XL violates the settlement in *Stein v. Cortes*” because its “ballot card” is not a paper ballot for purposes of the Agreement. (Id. at 12.) This was the first suggestion that the XL violated the Agreement.

On September 3, 2019, Secretary Boockvar issued a Reexamination Report addressing the voters’ concerns and confirming certification of the ExpressVote XL. (Fact. Stip. ¶ 75; Reexamination Report, Jx 45.)

H. Philadelphia Purchases the ExpressVote XL

The City began replacing its DREs in April 2018, actually employing its new XLs in the November 2019 election. The City sought to follow its “Best Value” procurement process. On June 4, 2018, the City issued a “Request for Information” about available voting machines. (2/21/19 Tr. 17:24–18:3.) City officials from different departments drafted a “Request for Proposals,” which was shared publicly on November 30, 2018. (Fact. Stip. ¶ 45 ; 2/21 Tr. 7:21–

25.) The City’s “Selection Committee” conducted two rounds of reviewing and scoring the proposals submitted, assessing technical specifications and then cost.

This process, which also involved City Council review, culminated with the City Commissioners’ February 20, 2019 vote to purchase the XLs. (Fact. Stip. ¶¶ 50–51; Philadelphia City Commissioners Approve New Voter-Verifiable Paper Ballot Voting System and New Electronic Poll Books, 2/20/19 Press Release, Jx 37.) On May 3, 2019, the City and ES&S executed a \$29 million contract for 3,750 XL machines. (Contract, Px 1004; 2/21/20 Tr. 34:16–19.) Between April and August 2019, ES&S transported the machines from its “aggressive[ly]” secured Omaha headquarters to Philadelphia. (2/19/20 Tr. 233:13–19; 2/21/20 Tr. 34:9–12, 35:1–2.) The City stored the machines nested together in a locked warehouse, where four of the Boards’ Directors and twenty employees work. (2/21/20 Tr. 48:1–17.)

Board of Elections technicians (who themselves were trained by ES&S employees in Omaha) have conducted over 100 sessions instructing the City’s 8,000 poll workers on the XL’s use. (Id. 40:1–41:14.) Additionally, the Board held over 830 public XL demonstrations and training sessions before the November 2019 election. (Id. 42:12–15.)

The City “expedited” in “every way it possibly could” to have the machines in place in time for the November 2019 election in accordance with the Commonwealth’s Directive. (2/18/20 Tr. 124:21–23.) Procurement, training, and installing the XLs nonetheless “took 18 months in a non-presidential year.” (Id. 125:3–4.) As Secretary Boockvar explained, the process “takes longer, takes more resources, takes more preparation in a presidential year.” (Id. 125:16–126:4); see 2019 Act 77, P.L. 552.

By the time of the February 2020 hearing, the City had paid \$20 million to ES&S for the XL machines, with \$9 million to be paid. (2/21/20 Tr. 58:14.) In addition, the City had spent \$1.2

million to hire a transition consultant, over \$1 million to lease and modify the storage warehouse, and \$1.6 million for supplies. (Id. 57:7–16.)

The City has in place many election security protocols. All machines arrive at the poll site sealed and locked. Once the ballot is finalized, the Board of Elections pretests all voting machines: “this process include[s] full functional testing for every machine used on Election Day in which staff [cast prescribed votes] on each machine five times.” (Lynch Decl. ¶ 25, Dx AA; see Baumert Decl., Dx BB ¶ 21.) Each machine’s totals are confirmed against the correct outcome. (See Lynch Decl. ¶ 25, Dx AA.) Before public voting starts, poll workers ensure that the seal number matches the machine, break the seal, unlock the machine, enter a passcode, and upload the specifically configured ballot using a preprogrammed USB.

The City was quite pleased with the XL’s performance during the 2019 general election. (2/21/20 Tr. 33:13–16.) After Philadelphians cast their ballots on XLs during the November 2019 election, the machines underwent a statutorily-mandated audit. The City also volunteered to pilot a risk-limiting audit, manually checking statistical samples of paper ballots. (Tr. 117:11–118:4.) Both audits “confirmed the outcome of the election as recorded on election night.” (Id. 118:3–4.)

I. Dr. Stein Challenges the XL

Only after Pennsylvania voters raised the issue in their unsuccessful Petition did Dr. Stein first express her concern that the ExpressVote XL does not comport with the Settlement Agreement. Like her request for relief, her “concern” was a work in progress—changing as the Commonwealth responded to her criticisms.

In her July 29, 2019 letter to the Commonwealth, Stein raised a single issue: that the summary card is not “voter-verifiable” because although a voter can “verify” the text, she cannot verify the barcode the machine scans. (Id. at 2.) Although she was aware that the “printhead” issue had been raised in the voters’ Petition, Stein did not mention it in her letter. DOS responded

to Stein after the Secretary resolved the Petition. (8/9/19 Gates Letter, Jx 44.) The Department noted that the paper record includes “the voter’s selections . . . in both a barcode and as human-readable text,” and so complies with the Agreement’s requirement of a “voter-verifiable record of each vote.” (9/12/19 Gates Letter, Jx 47.)

In her October 1, 2019 letter, Stein raised new criticisms: for the first time urging that the XL violates the Settlement Agreement’s “paper ballot” requirement, and that the printhead issue precludes the robust auditing required by the Agreement. (10/1/19 Maazel Letter, JX 48.) After the Commonwealth responded, Stein filed the instant Motion on November 18, 2019, adding yet another “new” concern that harkened to her 2016 allegations: the XL is uniquely vulnerable to hacking. (See 11/13/19 Gates Email, Jx, 50; Pls’ Mot. to Enforce, Doc. No. 112.)

Just as Dr. Stein based her initial Complaint on the theories of Dr. Halderman (a professor at the University of Michigan), she bases the instant Motion on him as well. Halderman’s testimony was neither credible nor helpful. Throughout, he acted more as an advocate than an “expert.” Halderman repeatedly tried to avoid answering questions when the truthful response might not help Stein. (See, e.g., 2/19/20 Tr. 6:12–8:2, 9:24–10:4.) He routinely offered opinions without factual basis, apparently seeking to bolster Stein’s litigation position. (See, e.g., *id.* 16:14–18–7, 62:18–63:7, 66:13–16, 80:9–15, 82:2–83:8.) Indeed, Halderman’s “advocacy” was so vigorous, I was compelled to caution him (to no avail). (*Id.* 62:18–64:4.) Curiously, Stein’s designated monitor could not recall when he first learned about the XL’s basic features, and knew very little about how the XL is used in Pennsylvania. (See, e.g., 2/19/20 Tr. 103:10–12.) Halderman could not recall how he familiarized himself with the XL. (*Id.* 99:22–100:19.) He was unable to explain why he had sent “feedback” to Mr. Maazel encouraging the Commonwealth to certify the ExpressVote XL (with restrictions not relevant to this dispute). (2/19/20 Tr. 53:11–19.)

Halderman’s testimony that he could not recall either when he learned of the XL’s key features, or its testing and certification by the Commonwealth (thus making him incompetent to advise Stein during settlement negotiations), was certainly untrue. (See, e.g., *id.* 88:8–91:9, 99:9–100:9.) Remarkably, even Dr. Stein apparently understands that Halderman has little credibility: she urges that “when it comes to settlement discussions and the meaning of terms in the Agreement, Dr. Halderman’s views are irrelevant.” (Pls.’ Proposed Findings of Facts ¶ 127 n.6.)

“Paper Ballot”

Dr. Halderman testified that the XL’s summary card is not a ballot because it provides only the voter’s selections, rather than all contest options. Yet, in July 2018 Halderman visited E&S’s Omaha headquarters, where he saw the paper ballot produced by the ExpressVote 2.1, and raised no objection, even though its ballot is identical to that produced by the ExpressVote XL. (2/19/20 Tr. 103:4–104:24.) Moreover, in his written “feedback” to Mr. Maazel, Halderman did not raise this criticism of the XL or the five other voting machines, endorsing them even though they employ similar summary cards. (10/9/18 Maazel Email; 2/19/20 Tr. 99:13–14, 139:10–24.) Plainly, he believes the summary card is a ballot within the meaning of the Agreement. Indeed, he has referred to the summary card as a “ballot” repeatedly. (10/9/18 Maazel Email.) When asked to explain, Halderman testified “I might have been speaking imprecisely . . . I don’t recall.” (2/19/20 Tr. 53:15, 53:19.)

At Halderman’s apparent urging, Stein included in her Motion yet another reason the XL violated the Agreement: the machine violates the Agreement’s footnote 3 because it is actually a DRE with VVPAT, providing a “receipt” and not a paper record. (2/19/20 Tr. 6:18–7:1.) Yet, Halderman never raised this dubious suggestion in his written “feedback,” presumably because it is incorrect: the XL is not a DRE—it does not “directly record” the voter’s selection. Rather, it

tabulates votes from the summary card, completely unlike a DRE. (See 10/9/18 Maazel Email (encouraging certification of all non-DRE machines, including ExpressVote models).)

“Voter-Verifiable Record of Each Vote”

Halderman testified that the XL does not produce a voter-verifiable record of the vote because “nothing that the voter has . . . seen and been able to interpret is ever being read by the machine.” (2/19/20 Tr. 26:9–15.) After acknowledging that a voter can read the text disclosing the voter’s choices, however, Halderman agreed that verifiability would be an issue only if there is a mismatch between the barcode and the text. (Id. 26:16–25.) Yet, Halderman did not dispute that the machine itself will not record a vote if there is a mismatch between the barcode and the text. This is also the very discrepancy that an audit will detect. (Id. 237:12–238:17 (describing multiple audit techniques for catching mismatches).) Moreover, ***there is no evidence that the XL has ever produced such a mismatch.*** (2/18/20 Tr. 157:6-10 (Boockvar) (no evidence of mismatch); 2/19/20 Tr. 224:17–225:15 (Baumert) (no evidence of mismatch in testing or in any of the 11 or 12 elections in which the XL has been used).) In certifying the XL, the EAC found no such mismatch in its million and a half marks test. Halderman reluctantly acknowledged as much:

Q. Sitting here today, you don’t have any evidence that any ExpressVote XL Machine has actually done that [i.e. produced a ballot with a barcode that did not match the text] in any election, isn’t that right? A. ***No, I don’t.***

Id. 66:13–16 (emphasis added).)

Halderman was unable to explain how a hacker could actually create and install malware that reprograms each XL to print ballot cards with barcodes that mismatch the text. (Id. 72:21–73:1 (Q. You are unaware of anyone ever having actually done it [i.e. introduced malware into an XL]. Have you ever seen it done? A. I don’t. I have no evidence that anyone has ever done that to these machines. Q. Have you ever seen it done as an experiment? A. No, I haven’t.”).) The

hacker would have to remove the City's numbered seal on each XL (then replacing it with a matching, unbroken seal), "break into [each] machine[]" to gain access to the hard drive within a sealed compartment, and "replace the data drive that has the operating system" with compatible software able to bypass hash checking. (Id. 229:22–25, 230:1–7.) The hacker would thus first need to obtain a version of ES&S's election software, which is kept at their secure headquarters. (Id. 232:3–11.) The malware, which does not presently exist, would have to be extremely sophisticated to deceive the XL's internal security checks (which confirm that the XL has not been altered from day-to-day), and to communicate with the printer and paper path. (Id.) Halderman provided nothing to suggest that this ever has or even could occur.

In sum, there is no truth in Dr. Halderman's "hacking" testimony.

"Capable of Supporting a Robust Pre-Certification Audit"

Dr. Halderman speculated that the XL cannot support the required audit because it is vulnerable to malware attacks that would render the underlying paper votes unreliable. (See, e.g., 2/19/20 Tr. 13:23–24.) As I have found, the malware suggestion has no basis. Moreover, even if the malware could somehow be created and then inserted (into some 4,000 machines individually), it would have to overcome the XL's hardware features designed to make meddling impossible.

Dr. Halderman speculated that "if [the ExpressVote XL's] software is compromised, it would be possible for the machine to print on the ballot card again after the voter has seen it," thus compromising the integrity of the auditable paper trail. (2/19/20 Tr. 14:1–5.) Sophisticated malware could thus direct the XL's printer to add votes to the ballot without the voter's knowledge. When confronted with the unfortunate facts that the XL *printer has no erasing function* and the ballot provides virtually no space for additions, Halderman modified his theory, speculating that "the attacker [might] change [the ballot card] so that the first time it's printed it leaves more space,"

or attack ballots only when a voter has left a selection blank. (Id. 18:2–3, 19:18–20.) Once again, Halderman testified that he has never actually seen this done. (Id. 80:9–15.)

The XL is designed to make the tampering Dr. Halderman’s suggests impossible. The machine uses a barcode that is “exceptionally difficult to modify” because it leaves little space to add digits and requires parallel changes to both the barcode and text digit. (2/19/20 Tr. 244:22–245:9; see Fig. 2, *supra*.) The XL “prints selections for every possible vote” (including “no selection” when none is made), leaving no space for fraudulent additions or alterations. (Id. 243:22–244:9.) Finally, Halderman’s hacker would have to reengineer and then reinstall each XL printer (designing it to print in reverse) to achieve his goal. Once again, this is fantasy.

Halderman further opined that the ExpressVote XL could be “corrupted” so that it improperly counts “spoiled” votes. Once again, Halderman offered this criticism without “any evidence . . . that [it has] actually happened with any XL machine that has been used” during an election. (Id. 82:7–11.) Once again, Halderman’s scenario is impossible. Mr. Baumert credibly explained: “the way the logic of the machine works, any time the card comes out the front, the vote data is destroyed, is erased in the working memory.” (2/19/20 Tr. 216:5–8.) The data is stored permanently (i.e. a vote is added) only when the card is deposited into the bin. (Id. 216:8–19.) A “spoiled” vote thus could not be “counted.”

Finally, Stein urges that I should believe Halderman because the Commonwealth “stonewalled” his attempts to obtain video recordings of tests performed on the XL and other voting machines. (See Pls.’ Proposed Findings of Fact ¶¶ 140–67; 2/19/20 Tr. 42:8–19.) The Commonwealth was obligated under the Agreement to inform Stein of machine testing. The record confirms that Halderman knew the XL had already been tested before the Agreement was signed. There is no evidence that Pennsylvania “stonewalled” Halderman. (SA ¶ 4.) The videos—

which the Commonwealth provided as a courtesy—were voluminous (comprising 17 hours for the XL alone), and had to be screened first by ES&S and other manufacturers to remove proprietary information. (2/18/20 Tr. 261:1–19, 266:14–267:19, 279:18–280:18; SA ¶ 4 (requiring the Commonwealth to “ensure that Plaintiffs are made aware of” and invited to onsite testing, but imposing no requirement that the Commonwealth furnish Plaintiffs with videos); *id.* ¶ 4(c) (denying Plaintiffs access to vendors’ “proprietary information”).)

Moreover, the videos are beside the point. Even after I gave Stein the opportunity to present relevant video excerpts to show how the testing footage informed her understanding of whether XL complies with the Settlement Agreement, she offered nothing. The testing videos have nothing to do with this dispute. Even assuming, *arguendo*, that the Commonwealth delayed providing Stein with irrelevant materials, that does nothing to fill this gap in Stein’s presentation.

J. 2020 Elections Approach

As of the time of this writing, Pennsylvania’s general election will take place on November 3, 2020, less than a year from the filing of the instant Motion. (Fact. Stip. ¶ 96.) Were I to order the Commonwealth to decertify the XL, the City would have to undertake another procurement process, which would likely not be completed until well after the primary and general elections. (2/19/20 Tr. 347:4–17.) Even if the City skipped its typical RFI and RFP steps, Procurement Commissioner Joyner-Neysmith testified credibly that as of February 21, 2020 there would not be enough time to select, purchase, and obtain replacement machines in time for either election. (2/21/20 Tr. 16:18–17:1.)

Putting the purchase process aside, the City could not adapt so quickly to new machines as a general election approaches. The Board of Elections would need to train its employees and over 8,000 poll workers who oversee elections—a process that took months during the XL’s rollout. (2/21/20 Tr. 40:1–41:15.) Yet, the Board has fewer resources now: part of its staff has been

reassigned to processing an expected dramatic increase in voter registrations. (Id. 28:12–15.) Both Secretary Boockvar and Philadelphia Board of Elections Executive Director Joseph Lynch thus testified that it would be very difficult, if not impossible, for Philadelphia to switch to new machines in time for the 2020 election. (2/18/20 Tr. 124:3–10; 2/21/20 Tr. 29:3–5.) The COVID-19 pandemic would undoubtedly increase these difficulties.

Finally, decertifying the XL would come at great financial cost to the City, which, at the time of the February 2020 hearing, had already expended well over \$20 million on the XLs and related costs. The City’s contract with ES&S states that the Company will provide replacement machines at no cost to the City in the event of decertification. (Contract art. XII, Px 1004.) That very general indemnification provision includes no timeline, mentions no particular replacement machines, and, if invoked by the City, would undoubtedly give rise, at the very least, to lengthy negotiations, likely followed by litigation. The City would in the interim be obligated to purchase new machines at considerable cost.

VI. DISCUSSION

“A settlement agreement is a contract” governed by “familiar principles of contract law.” Tedesco Mfg Co. v. Honeywell Int’l, Inc., 127 F. App’x 50, 52 (3d Cir. 2005); In re Columbia Gas System, Inc., 50 F.3d 233, 241 (3d Cir. 1995). Pennsylvania law governs the disputed agreement. (SA ¶ 23.) To make out a breach of contract, Stein must prove: “(1) the existence of a contract, including its essential terms; (2) a breach of the contract; and (3) resultant damages.” Meyer, Darragh, Buckler, Bebenek & Eck P.L.L.C. v. Law Firm of Malone Middleman, P.C., 137 A.3d 1247, 1258 (Pa. 2016). I may order specific performance (which Dr. Stein seeks) only “where the facts clearly establish the [Plaintiffs’] right thereto, where no adequate remedy at law exists, and

where justice requires it.” Linde v. Linde, 210 A.3d 1083, 1090–91 (Pa. Sup. Ct. 2019) (internal quotation marks and citation omitted).

“[T]he fundamental rule of contract interpretation is to ascertain” the Parties’ intent. McDonough v. Toys R Us, Inc., 795 F. Supp. 2d 329, 333 (E.D. Pa. 2011). To evaluate whether a breach has occurred, I must interpret the contract in two steps. I “must make a preliminary assessment as to whether the contract” is ambiguous. Sanford Inv. Co. v. Ahlstrom Machinery Holdings, Inc., 198 F.3d 415, 421 (3d Cir. 1999). Ambiguity, which is a question of law, arises when a term “is susceptible to reasonable alternative interpretations.” Id.; see Commonwealth v. E.J. Albrecht Co., 430 A.2d 328, 330 (Pa. Commw. Ct. 1981). Although the Agreement itself embodies the Parties’ intent, I must “read[] the contract in the context in which it was made.” Pacitti v. Macy’s, 193 F.3d 766, 773 (3d Cir. 1999); Krizovensky v. Krizovensky, 624 A.2d 638, 643 (Pa. Sup. Ct. 1993) (“To determine whether there is an ambiguity, it is proper for a court to hear evidence from both parties and then decide whether there are objective indications that the terms of the contract are subject to differing meanings.”). I assess ambiguity by considering “the words of the contract, the alternative meaning[s] suggested by counsel, and the nature of the objective evidence to be offered in support of that meaning.” Mellon Bank, N.A. v. Aetna Bus. Credit, Inc., 619 F.2d 1001, 1011 (3d Cir. 1980).

If the contract is unambiguous, “the intent of the parties must be determined exclusively from the agreement itself.” Metzger v. Clifford Realty Corp., 476 A.2d 1, 5 (Pa. Sup. Ct. 1984). If the contract contains ambiguities, however, “extrinsic or parol evidence may be considered to determine the intent of the parties.” Id.; Columbia Gas, 50 F.3d at 241 (“Absent clear language in the settlement agreement to resolve a dispute over the proper construction of a contract, a court

may go outside the four corners of the contract and consider extrinsic and parol evidence presented by the parties.”).

As the fact finder, I must “resolve ambiguities and find the parties’ intent.” Id.

A. The Settlement Agreement Is Ambiguous

Courts deem unambiguous (and interpret as a matter of law) contract terms that are “so clear [they] can only be read one way.” Pennbar Corp. v. Ins. Co. of N. Am., 976 F.2d 145, 149 (3d Cir. 1992). “Where the language is clear and unambiguous, the court must construe the contract as written and may not modify the plain meaning under the guise of interpretation.” Adams Parking Garage, Inc. v. City of Scranton, 33 F. App’x 28, 31 (3d Cir. 2002); Globus Med., Inc. v. Vortex Spine, LLC, 213 F. Supp. 3d 719, 729 (E.D. Pa. 2016). Such clear language “speaks for itself and a meaning cannot be given to it other than that expressed.” Lesko v. Frankford Hospital-Bucks Cty., 15 A.3d 337, 342 (Pa. 2011) (quoting Steuart v. McChesney, 444 A.2d 659, 661 (1982)).

The instant case is quite different. Each of the Agreement’s disputed provisions uses language subject to conflicting, reasonable interpretations. Because this was apparent from the text of the Agreement, and confirmed by Stein’s Motion and the Commonwealth’s Response, I ordered the February 2020 hearing. See Mellon Bank, 619 F.3d at 1011. The evidence there presented shows that the Agreement’s key terms are ambiguous. See Baldwin v. Univ. of Pitt. Med. Ctr., 636 F.3d 69, 76 (3d Cir. 2011).

“Paper Ballot” Requirement

The Agreement provides that the Secretary may certify voting machines only if “[t]he ballot on which each vote is recorded is paper.” (SA ¶ 2(a).) As used here, “ballot” is ambiguous.

Stein urges that under Pennsylvania’s Election Code, a paper record is a “ballot” only if it lists all contest options and conforms in “layout and format” to the equipment on which the vote is cast. (Pls.’ Mot. 9 (quoting 25 P.S. § 3031.1).) She points out that other “ballots”—“absentee ballots” and “mail-in ballots”— contain contest options. (Pls.’ Proposed Conclusion of Law 6.)

The Commonwealth argues that the Election Code is nowhere mentioned in the Agreement, and that “paper ballot” is merely a “shorthand restatement” of the Parties’ requirement that “[t]he ballot on which each vote is recorded [be] paper.” (Defs.’ Opp’n at 24.) A paper record of the vote may be produced by hand or by a ballot-marking device; it may contain all contest options or merely the selections. (See Securing the Vote at 42–43.)

These conflicting interpretations confirm that “ballot,” as used in the Agreement, is ambiguous. Baldwin, 636 F.3d at 76

Voter-Verifiable Record of Each Vote

Under the Agreement, the Secretary may certify only those voting systems that “produce a voter-verifiable record of each vote.” (SA ¶ 2(b).) This phrase may be “understood in more senses than one,” so it too is ambiguous. Am. Eagle Outfitters v. Lyle & Scott Ltd., 584 F.3d 575, 588 (3d Cir. 2009).

Stein argues that the phrase means the actual *vote* created must be readable by human beings. Companion text mirroring the vote embodied in a barcode, in Stein’s view, is insufficient.

The Commonwealth urges that the phrase requires “a voter-verifiable **record of** the vote,” arguing that Stein improperly eliminates key language. (Defs.’ Opp’n 21 (emphasis in original).) The Commonwealth thus contends that the actual “vote”—*i.e.*, what is tallied in the first instance— may be computer-readable, provided it is accompanied by human-readable text.

Once again, these conflicting interpretations underscore that the phrase is ambiguous. Baldwin, 636 F.3d at 76 (“If the words of the contract are capable of more than one objectively reasonable interpretation, the words are ambiguous.”).

Robust Pre-Certification Audit

Any machine certified by the Secretary must be “capable of supporting a robust pre-certification auditing process.” (SA ¶ 2(c); see also id. § III (“Robust Pre-Certification Auditing”).) What constitutes “robust pre-certification audit” is not specified. Rather, the Agreement provides that each county will determine its own process “based on the recommendation of a Work Group established by the Secretary” after applying certain principles. (Id. ¶ 5.) There is thus necessarily more than one reasonable interpretation of the disputed phrase.

Unsurprisingly, the Parties offer conflicting interpretations. Stein acknowledges that “[d]ifferent methods of pre-certification auditing exist,” but argues that the provision requires, at minimum, the capacity to check ballots “to correct any computer-based error or fraud.” (Pls.’ Mot. 12 (quoting Halderman Decl. ¶ 10).)

The Commonwealth argues that an acceptably robust pre-certification audit means hand-counting the votes cast in a “random, statistically appropriate sample of ballots” before certification “to ensure the machine-counted result is accurate.” (Defs.’ Opp’n 26.)

Although both sides “interpret” the contract to favor the outcome urged (as they do with the other disputed terms), each offers a “reasonable” interpretation. The term is thus ambiguous. See Madison Construction Co. v. Harleysville Mut. Ins. Co., 735 A.2d 100, 106 (Pa. 1999).

B. Extrinsic Evidence

The credible evidence both underscores the ambiguity of the disputed terms and phrases and clarifies their meaning. When interpreting the ambiguous Settlement Agreement, I must “ask

as a matter of law how a reasonable person would read the term at issue.” Huang v. Att’y Gen., 620 F.3d 372, 385 (3d Cir. 2010); see Windows v. Erie Ins. Exchange, 161 A.3d 953, 958 (Pa. Super. Ct. 2017) (“Where the words used in a contract are ambiguous, the surrounding circumstances may be examined to ascertain the intent of the parties.”) (quoting Walton v. Phila. Nat’l Bank, 545 A.2d 1383, 1389 (Pa. Super. Ct. 1988)). “[C]onflicting parol evidence relevant to what the parties intended by the ambiguous provision” presents a question of fact which I resolve based on my findings, which I must resolve. Id. (quoting Walton, 545 A.2d at 1389).

1. “Paper Ballots”

The Settlement Agreement mentions paper ballots twice in its section titled “Voter-Verifiable Paper Ballots for Every Voter.” First, the Secretary may certify only machines for which “[t]he ballot on which each vote is recorded is paper.” (SA ¶ 2(a) & n.3.) Second, “[t]he Secretary *will continue to direct* each county in Pennsylvania to implement these voting systems by the 2020 primaries, so that every Pennsylvania voter in 2020 uses a *voter-verifiable paper ballot*.” (Id. ¶ 3 (emphases added).)

In defining “ballot” as used in the Agreement, Dr. Stein invokes for the first time a Pennsylvania Election Code “paper ballot” provision that requires “ballots” used in non-electronic voting to “conform[] in layout and format” to the voting screen. (Pls.’ Mot. to Enforce 9 (citing 25 P.S. § 3031.1); see 2/18/20 Tr. 141:11–19.) This obviously has nothing to do with the use of “ballot” in the Settlement Agreement. That is undoubtedly why, during settlement negotiations, no one referred to the Pennsylvania Election Code or this definition (which, in any event, is in a provision that does not apply to the XL). (2/18 Tr. 99:4–13, 141:14–15, 235:16–236:2.) To the contrary, Stein’s negotiators used the term “ballot” loosely throughout. As I have found, Dr. Halderman described the Commonwealth’s prospective machines as follows, “All of them (that use *paper ballots*) can be used with reasonable security if implemented with voter-verified paper

ballots and robust manual audits.” (10/9/18 Maazel Email (emphasis added).) In approving the ExpressVote, configured to show voters their printed ballot card before casting votes, Halderman called the ExpressVote’s summary card a “completed *ballot*.” (10/9/18 Maazel Email (emphasis added); 2/19/20 Tr. 133:134:6.) Indeed, the Appel blog post to which Halderman referred similarly calls the summary card a “paper ballot.” (Appel, Serious Design Flaw in ESS ExpressVote Touchscreen: “Permission to Cheat.”)

The Commonwealth also used the term “ballot” loosely, and often borrowed the varied terminology used by vendors. (2/18/20 Tr. 17:20–18:2.) The Commonwealth’s public announcements and negotiation statements reflected its overriding concern throughout: making the Settlement part of Pennsylvania’s “path” to machines that allowed each voter to create a verifiable paper record. Once again, Secretary Boockvar deemed the “continuing to direct” language nonnegotiable.

As I have found, Stein’s only concern during the negotiations was the replacement of DREs with machines that provided a paper record of selections made that the voter could verify and the Commonwealth audit. See Baldwin, 636 F.3d at 76, 78 (instructing district court to consider, *inter alia*, the parties’ “bargaining history” to identify and resolve ambiguous terms). Halderman’s “imprecise” use of “ballot” reflected that concern and belies any suggestion the Parties meant a printout containing all contest options. The materials introduced at the hearing—including Appel’s blog posts and vendor marketing materials—confirm that this loose usage of “ballot” is typical, and its inclusion in the Settlement Agreement would not have indicated to Stein or the Commonwealth a particular, narrow meaning. Moreover, Stein’s belated insistence on a machine that produces a “ballot” listing all contest options is not only outside the goal she sought to achieve during negotiations (elimination of Pennsylvania’s DREs), her interpretation would eliminate four

of the machines she knew the Commonwealth was considering for certification, and, in fact, did certify. (2/19/20 Tr. 139:10–16; see, e.g., Dominion Ballot Card, Jx 54; 2/19/20 Tr. 138:9–20.) Finally, including all contest options—and not just the options selected—would do nothing to enhance election integrity, Dr. Stein’s professed goal throughout the negotiations.

This history plainly confirms that the Parties intended to use “ballot” as “[a]n instrument, such as a paper or ball, used for casting a vote.” *ballot*, Black’s Law Dictionary (11th ed. 2019). Such an instrument need not contain all contest options.

2. “Voter-Verifiable Record of Each Vote”

This phrase requires that certified machines display or provide to the voter some sort of paper allowing her to confirm her selections before her vote is cast. As the extrinsic evidence underscored, this is closely connected to the Commonwealth’s Initiative to phase out DREs. The Initiative provided that “all voting systems purchased **on or after February 9, 2018** must be of the type that employs a voter-verifiable paper ballot of a voter-verifiable paper record of the votes cast by a voter.” (2/9/18 Directive; see Pennsylvania Department of State Invites Bids on New Paper Record Voting Systems, Jx 4; see also 2/18/20 Tr. 84:15–20.) The materials the Commonwealth shared with Stein during negotiations made clear that the Secretary would consider only machines that allow voters to confirm their choices with a ballot produced by the voter herself or with a printout from a ballot-marking device. (9/28/18 Unger Email; Revised Examination Directive, Attachment E, Jx 7, at 5.) Moreover, these documents left no doubt that the Commonwealth would embrace machines that tabulated votes through machine-readable code (such as barcodes and QR codes), allowing the voter to verify companion text. In fact, all the machines certified in Pennsylvania currently in use tabulate votes by reading symbols that are inscrutable to human beings. (Fact Stip. ¶¶ 98–110; 2/18/20 Tr. 132:22–133:2.)

Accordingly, as I have found and Secretary Boockvar explained, this phrase is closely related to the “paper ballot” requirement: together, they ensure that a voter confirms her vote on paper before it is tallied, distinguishing the new machines from DREs.

3. “Robust Pre-Certification Auditing”

Although Stein believes that the XL is not “capable of supporting a robust pre-certification auditing process,” her reasons are unclear. (SA ¶ 2(c).) Halderman testified that because the XL can be “hacked” it cannot support a robust audit. (2/19/20 Tr. 13:20–14:10.) It thus appears that Stein defines the phrase as one that necessarily includes the requirement that the subject voting machine cannot be hacked. Yet, Halderman himself opined that every voting system using software can be “hacked.” (See, e.g., 2/19/20 Tr. 69:23–70:22.) Stein thus construes the phrase—and, by extension, the Agreement itself—as one imposing a requirement that is impossible to meet.

As I have found, Halderman could not credibly explain how Pennsylvania’s XL machines, with all their safeguards and security features, could be subject to tampering or the introduction of malware. The Commonwealth thus construes the audit requirement as one dependent on a secure machine that creates a paper voting record that the Commonwealth can scrutinize should a vote check or recount be necessary.

Only the Commonwealth’s understanding is supported by the extrinsic evidence or by reason.

C. The ExpressVote XL Does Not Violate the Settlement Agreement

As I have found and the record overwhelmingly shows, the Agreement was but a part of the Commonwealth’s ongoing Initiative to replace its DREs with machines that would create a voter-verifiable paper record. The XL does just that.

The XL’s summary card is certainly a “paper ballot” as used by the Parties. (See Figure 2, *supra*.) The ballot-marking machine prints the voter’s selections for her to review before casting her vote. The written text is the official vote of record and relied upon during audits. There is no evidence that the barcode, which the scanner counts, ever mismatches the text. To the contrary, the evidence confirms that such a mismatch has never occurred and cannot occur.

The XL produces a voter-verifiable record of each vote. Because the “official vote of record” is the human readable text, the XL’s ballot card is both a human-verifiable “record of the vote” as well as a human-verifiable “vote.”

Finally, as I have found, the XL supports robust pre-certification auditing. Indeed, the ExpressVote XL *actually supported* a risk-limiting audit following the November 2019 election in Philadelphia. (2/18/20 Tr. 234:3–7.) Stein does not dispute that the XL has shown in practice that it supports a robust audit.

Stein’s reading of the Settlement Agreement would not only require the Commonwealth to decertify the XL, it would impugn almost all the machines currently used in Pennsylvania. (See, e.g., 2/18/20 Tr. 36:7–12 (all certified configurations, except one, “use either barcodes, QR codes[,] or timing marks or sensors”). Such a reading is necessarily wrong.

In sum, because the XL complies with the Settlement Agreement, I will deny Stein’s Motion.

D. Dr. Stein’s Enforcement Motion Is Barred by Prejudicial Delay

In the alternative, I conclude that the affirmative defense of laches bars the relief Stein seeks.

“Laches ‘is a defense developed by courts of equity’ to protect defendants against ‘unreasonable, prejudicial delay in commencing suit.’” SCA Hygiene Prods. Aktiebolag v. First

Quality Baby Prods., LLC, 137 S. Ct. 954, 960 (2017) (quoting Petrella v. Metro-Goldwyn-Mayer, Inc., 572 U.S. 663, 667 (2014)). Laches thus requires a showing of: (1) “a delay arising from [Plaintiffs’] failure to exercise diligence”; and (2) “prejudice to the [Defendants] resulting from the delay.” Sprague v. Casey, 550 A.2d 184, 187–88 (Pa. 1988). These questions are factual, depending on the circumstances of the case, including the nature of relief sought. See id.; see also Socony Mobil v. Continental Oil Co., 335 F.2d 438, 441–42 (10th Cir. 1964).

Once again, weeks before the February 2020 hearing, I found that the Commonwealth had made a *prima facie* showing of Stein’s unwarranted, prejudicial delay in filing her Motion. (Doc. No. 161 ¶ 2.) She presented nothing at the hearing to alter that determination.

I have found that at the time of the November 28, 2018 Settlement Agreement, Stein knew that the Commonwealth had already tested the XL and was about to certify the machine. I have also found that Stein knew about the XL’s certification at the time it was publicly and widely disclosed a month later. At that time, Stein knew of the XL’s key features (to which she now objects). Yet, Stein did not inform the Commonwealth of her belief that the XL violates the Settlement Agreement until July 29, 2019—*after* she was alerted to criticisms raised in the voters’ Petition for Reexamination. (7/29/19 Maazel Letter.) This eight-month delay thus reflects at best a lack of diligence, or at worst, a lack of good faith. Although Dr. Stein has never acknowledged when she learned of the certification, she seeks to excuse her delay by complaining that, after the Commonwealth repeatedly notified the public of the certification, it did not notify her personally, (even though it was under no obligation to do so). Although Halderman testified that he believed the Commonwealth “would contact [him] with information,” he admitted that he “was not involved in the settlement negotiations.” (2/19/20 Tr. 37:17–18, 84:24–25.) Indeed, Dr. Halderman had volunteered to monitor the Commonwealth’s certifications, and Mr. Maazel announced that he

would “be watching closely” to ensure the Commonwealth’s compliance with the Parties’ Agreement. As the Secretary put it, “you pretty much ha[d] to be living under a rock” to have missed it. (2/18/20 Tr. 154:4–5.) Plainly, the Commonwealth’s “failure” to provide Stein with its publicly disseminated and posted Certification Report does not excuse her eight-month delay.

Finally, Dr. Stein seeks to blame that delay on the time it took the Commonwealth to provide Dr. Halderman with the XL testing videos (which were made before the case settled). As I have found, however, those videos have nothing to do with Stein’s Motion. Even now, she does not explain what she learned from the videos that she did not already know that caused her to send her July 29 letter.

Stein’s delay is unreasonable and unwarranted, but, more importantly, it is greatly prejudicial. As I have found, granting the relief Stein seeks would effectively disenfranchise Philadelphia’s one million registered voters in 2020—just as granting the relief she belatedly sought in 2016 would have disenfranchised Pennsylvania’s six million voters. Such prejudice is grave and obvious. See Crookston v. Johnson, 841 F.3d 396, 399 (6th Cir. 2016) (“belated challenge to Michigan’s election procedures prejudices the State’s interest in holding orderly elections” and presents “a recipe for election-day confusion for voters and poll workers alike”); Republican Party v. Cortes, 218 F. Supp. 3d 396, 404 (E.D. Pa. 2016) (“There is good reason to avoid last-minute intervention in a state’s election process.”).

Stein has provided no evidence contradicting the Commonwealth’s initial showing of unwarranted delay or the testimony of Secretary Boockvar, Commissioner Nesmith-Joyner, and Executive Director Lynch of the great prejudice that decertifying the XL would cause. Rather, she argues only that “such testimony is not credible,” and that the 18 to 24 months the City would need

to replace the XLs is “unacceptable.” (Pls.’ Proposed Findings of Fact ¶¶ 211, 194.) This is not evidence; it is argument unsupported by evidence.

Stein thus has failed to refute the Commonwealth’s showing that the relief she seeks would have calamitous consequences. That prejudice, combined with Stein’s unwarranted delay, provides an independent basis to deny her Motion.

E. Equitable Considerations Further Counsel Against Dr. Stein’s Motion

In the further alternative, I will not order the Secretary to decertify the ExpressVote XL because doing so would destroy the City’s ability to hold an election this year. Although, as I have noted, Stein has repeatedly altered her request for relief, in her last iteration, she still seeks specific performance, asking me to “order the Secretary of the Commonwealth to decertify the ExpressVote XL in time for the November 2020 General Election.” (Pls.’ Proposed Conclusions of Law 22.) I will not do so.

Specific performance “is an equitable remedy for breach of contract.” Cotter v. Newark Housing Authority, 422 F. App’x 95, 99 (3d Cir. 2011); see Texas v. New Mexico, 482 U.S. 124, 131 (1987) (“[S]pecific performance is never demandable as a matter of absolute right, but as one which rests entirely in judicial discretion, to be exercised, it is true, according to the settled principles of equity, but not arbitrarily and capriciously, and always with reference to the facts of the particular case.”) (quoting Haffner v. Dobrinski, 215 U.S. 446, 450 (1910) (alteration in original)); Mrahunec v. Fausti, 121 A.2d 878, 880 (Pa. 1956) (“[S]pecific performance is not a matter of right but a matter of grace”). Even if Stein had presented a strong claim on the merits, such relief would be appropriate only if the benefits of decertifying the XL would be greater than the harm it exacts. See FTC v. Pa. State Hershey Med. Ctr., 838 F.3d 327, 352 (3d Cir. 2016); see also Reynolds v. Sims, 377 U.S. 533, 585 (1964) (“In awarding or withholding immediate

relief, a court is entitled to and should consider the proximity of a forthcoming election and the mechanics and complexities of state election laws, and should act and rely upon general equitable principles.”). It would not.

As I have found, if I order specific performance, Philadelphia’s voters will likely be disenfranchised, and the City would be compelled to spend millions of dollars on new machines. These significant public harms undoubtedly outweigh the “benefits” of ordering specific performance—and Stein has yet to offer evidence of what those benefits might be. See *Wesberry v. Sanders*, 376 U.S. 1, 18 (1964) (“No right is more precious in a free country than that of having a voice in the election of those who make the laws under which, as good citizens, we must live.”).

This completely inequitable imbalance provides an independent basis to deny her Motion.

VII. CONCLUSION

The Commonwealth and the City have expended considerable resources to demonstrate that Dr. Stein has based her Motion on absolutely nothing. There is no credible evidence even suggesting that the EAC and Pennsylvania have certified machines that can be “hacked.” Yet, Dr. Halderman’s daft theories, promoted by Dr. Stein, will undoubtedly shake the belief of some in their government because Stein has convinced them that voting integrity is at risk in Pennsylvania. That is certainly the most unfortunate consequence of Stein’s pointless Motion.

Because there is no basis in fact or law to order the relief Stein seeks, I will deny her Motion.

An appropriate Order follows.

/s/ Paul S. Diamond

April 29, 2020

Paul S. Diamond, J.