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Mr. Keith Ingram
Director of Elections
Texas Secretary of State
Elections Division
208 East 10th Street
Austin, Texas 78711

Re: Inspection of the Dominion Voting Systems' Democracy Suite 5.5 conducted on January 16 and 17, 2019

Dear Mr. Ingram:

Pursuant to my appointment by the Texas Secretary of State as a voting systems examiner under TEXAS ELECTION CODE § 122.035, please allow this letter to serve as my report concerning the above referenced examination. I, along with the other statutory examiners and staff from the Secretary of State's office, examined the Democracy Suite 5.5 voting system presented by Dominion Voting Systems ("**Democracy 5.5 System**") on January 16 and 17, 2019, at the offices of Elections Division of the Texas Secretary of State in Austin, Texas.

Before the examination date, I reviewed the written materials submitted by Dominion for compliance with the relevant provisions of the TEXAS ELECTION CODE and Texas Administrative Code related to the requirements for election machines and software. Some of these forms were required to be resubmitted because items had been omitted on the required Secretary of State forms. I then attended the examination of the Democracy 5.5 System on January 17, 2019.

The Democracy 5.5 system is an entirely new suite of election machines, software and related items from Dominion. The components of the Democracy 5.5 System include the items listed in the revised Form 100 submitted to the Secretary of State's office.

At the beginning of the exam on the 17th, representatives from Dominion were required to do an install on a precinct scanner that had not been installed as planned on the 16th. In addition, all of the Accessibility Testing had not been completed because Dominion had failed to bring all of the necessary equipment.

After completing the necessary installation of the load files not completed the previous day, the vendor provided a general overview of the Democracy 5.5 System. It is a complete voting system that includes ballot marking devices, DRE's, ballot scanners, election tabulation

and management software and supporting devices for accessibility needs. The primary hardware with which the voter would interact is called the “ICX” that can be configured as a ballot marking device or a DRE (there is also an “Image Cast Classic” device that can be a ballot marker, but not used as a DRE). Many of the components called for in the Democracy 5.5 System are commercial off the shelf products (“COTS”), especially the printers used with the ballot marking version of the ICX. The other primary device voters will use is the precinct scanners that voters will feed their ballots into if the ballot marking function of the ICX is used or the ballots are hand-marked. The remainder of the software and hardware will be used by voting officials, including the central scanners and tabulators and the election management software.

As the day progressed on the 17th, numerous problems arose as detailed below. Some of these problems were resolved, but several of the problems did not appear to have ready-made or simple solutions.

ACCESSIBILITY TESTING

Prior to the 17th, officials from the Secretary of State’s office tested some of the physical equipment of the Democracy 5.5 System for accessibility compliance with the applicable state laws and regulations. As noted previously, Dominion failed to bring all of the required items to do a full Accessibility Testing for all of the equipment. Some additional testing for accessibility issues was also conducted by me and other on the 17th; however, the vendor had to return at a later date to complete the testing. These tests confirmed that most of the new components in the Democracy 5.5 System complied with the accessibility requirements of Texas law; however, officials from the Secretary’s office noted that, when additional testing was done after the 17th, they discovered that when using the accessibility components for non-audio voting (i.e.- reading items on a screen), there were only audio instructions and no written instructions on the screen. This problem could raise issues with voters that wanted written instructions on the screen as part of their voting experience (for whatever reason).

TESTING OF HARDWARE AND SOFTWARE

As noted above, the installation of all of the software that is traditionally done on the first day of testing was not completed by the vendor due to its failure to have all of the necessary technical components for the install of the precinct scanner.

After the final installation was completed and Dominion officials gave an overview of the Democracy 5.5 System, the examiners and Secretary of State staff tested each piece of equipment and software for security, functionality and accuracy. The examiners and staff cast a script of ballots on each voting machine, including the ICX being used as a DRE, and paper ballots were fed into the optical scanners that were marked by the ICX being used as a ballot marking device and hand-marked ballots. The mock votes were tabulated and sorted with the election software included in the Democracy 5.5 System.

At the conclusion of the voting tests, the examiners and staff reviewed the audit logs and reports generated from the votes cast.

SPECIFIC ISSUES ARISING ON THE DAY OF THE INSPECTION

1. Some of the hardware in the Democracy 5.5 System can be connected to the internet, but the vendor claims it is protected by hardening of data and IP address features.
2. The foldable ballot box offered with the Democracy 5.5 System could not be used in early voting because it does not have the capability of having 2 locks with two separate keys securing the box as required by Texas law.
3. The rolling ballot box dividers for provisional or disputed ballot storage were not present, but the vendor claimed such dividers were available. This is important for handling the adjudication of provisional and contested ballots.
4. The use of COTS printers with the ICX device (in ballot marker mode) is a cost-savings measure, but the COTS hardware also presents issues for service, internal drivers for the hardware and the potential for traditional additional problems with any COTS product. For example, one examiner noted that having the printer tray ajar during the voting process caused the system, after all the races are voted, to wipe out all selections and require the voter to start over after the print tray is fixed. This would require a poll worker interaction and could greatly slow down the voting process.
5. The Verified Voter Paper Audit Trail (“VVPAT”) used with the ICX in DRE mode stores a voters selections in a sequential order, meaning that if a single ICX is used at a voter location and a limited number voters appear at the polling place, the secrecy of the ballot may be compromised by remembering the order in which voters used the ICX in comparison to the VVPAT tape.
6. The precinct ballot scanner jammed on several occasions and was very slow in scanning the hand-marked ballots.
7. The central scanner/tabulator also jammed on multiple occasions and ballot batches had to be re-run through the scanner. If this happened on a busy election night, it could create a significant delay in vote tabulation.
8. The “pigtail” portion of the cord connection to the power supply to the VVPAT portion of the ICX was easily accessible and could be unplugged by any voter. When the pigtail was unplugged at the examiners inspection, the process to get back to a voter-ready condition was unclear and complicated to the point that the battery had to be removed and reinstalled in the device. The vendor, after the inspection, stated that this power connection can be made behind a sealed door in a different configuration; however, it is clear an end-user may choose to configure the VVPAT in a way that allows this to occur.

9. The ICX machines had a problem with straight party voting in that the deselection of the straight party choice on a single race eventually leads to the deselection of all of the other straight party selections.
10. Use of non-sequential numbered paper ballots as required by the Texas Constitution cannot be created within the Democracy 5.5 System. Instead, the only way to comply with this requirement of the law would be to hand-write and/or pre-print paper with serial numbers in a range for the selected precinct and then manually intermingle the ballots so their numbers are not sequential.
11. The adjudication portion of the tabulation process in the election management software was problematic and showed that the handwritten write-ins subject to adjudication were not easily picked up by the ballot scanner. This poor resolution on the scanner also failed to pick up some of the printed wording on the ballots. In a follow-up, the vendor stated that only black Sharpie markers should be used for marking the ballots; however, when the black sharpie was used during testing, it did, on a few occasions, bleed through to the back side of the two-sided ballot in such a way that it could confuse the ballot scanner or kick the ballot out.
12. The paths for the import of election data in into the election management program also showed multiple opportunities for mistakes that required three (3) separate restarts of the adjudication process.

GENERAL OBSERVATIONS

- A. The hardware for the Democracy 5.5 System had multiple problems that could potentially be fixed with actions by the vendor. Some of these fixes would be simple, but others would require substantial engineering (such as resolution scan of the ballot readers).
- B. The software issues with Democracy 5.5 system are more problematic because these problems impact the entirety of the System and cannot be fixed on an individual component basis.
- C. The issues identified above could be corrected, but those corrections should be made and the System represented before the hardware and software components can be recommended for certification.

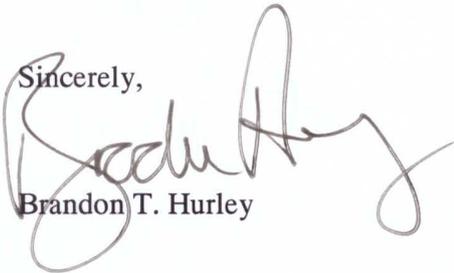
RECOMMENDATION

Based on the foregoing observations and my examination of the Democracy 5.5 System, its accompanying literature and the presentation made by Dominion officials both in its literature and at the examination, I cannot recommend that the Democracy 5.5 System be certified as

compliant with the requirements of the TEXAS ELECTION CODE and the TEXAS ADMINISTRATIVE CODE. My opinion could potentially change of corrections to the identified problems (in my report and other reports) are properly corrected and presented to the Secretary's office.

This report should not be construed as a tacit or implied comment on any of the technical aspects of the Democracy 5.5 System except as expressly stated herein. In the event any of the equipment, software or security devices examined are altered, changed or decertified by any accrediting agency (other than a "minor modification qualified for administrative certification process" as that term is defined in § 81.65 of the Texas Administrative Code), this report should be considered withdrawn.

Thank you for the opportunity to serve as an examiner and participate in this important process that protects the integrity of Texas' voting systems.

Sincerely,

Brandon T. Hurley