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June 24, 2019

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

Re: Inspection of the Hart Verity 2.3 System conducted on May 23, 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 Hart Intercivi Verity 2.3 voting system ("**Verity 2.3 System**") on May 23, 2019, at the offices of Elections Division of the Texas Secretary of State in Austin, Texas.

I examined the above referenced software and equipment and accompanying written materials for compliance with the relevant provisions of the TEXAS ELECTION CODE and Texas Administrative Code related to the requirements for election machines and software.

The Verity 2.3 System provides a new device known as the "Duo" as a hybrid ballot marking device with an internal printer along with minor changes to several of the previously introduced hardware and software components. The Verity 2.3 System includes many of the components from the Verity 2.0 System that has been previously certified in Texas.

It is important to note that the Verity 2.3 System application included the Verity Print that is a ballot-on-demand printing device that was not reviewed for certification since the certification process set out in Texas law does not include ballot-on-demand devices as part of the items to be certified or reviewed.

ACCESSIBILITY TESTING

On the first day of the inspection, others tested the physical equipment of the Verity 2.3 System for accessibility compliance with the applicable state laws and regulations. These tests

confirmed that the physical and software components of the Verity 2.3 System complied with the accessibility requirements of Texas law.

TESTING OF HARDWARE AND SOFTWARE

On the second day of the examination, Hart introduced the Verity 2.3 System to the examiners with an overview of the System and a description of how an election would be conducted with the Verity 2.3 System. Importantly, the representatives of Hart displayed the following about the Verity 2.3 System:

- The new 2.3 System has digital signatures throughout the system, including the audit logs
- All of the System's components will time out if there is a lack of voter activity
- The System's components are capable of accepting a 20 inch ballot
- The seals used on the System are more robust and meet all of the requirements of Texas law
- The System can support up to 3000 precincts which is more than twice the largest number of precincts in any Texas county (for County-wide voting centers and early voting)
- The security features of the System include non-standard ports, two-factor authentication and keyed locks
- There is not a way the System can be connected to the internet or accessed remotely
- The System has redundant backups both on drives and in paper

After the presentation and general questioning of Hart officials, the examiners 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 and paper ballots were fed into optical scanners that were part of the Verity 2.3 System. The mock votes were tabulated and sorted with the new election software.

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

OBSERVATIONS

1. Each of the separate pieces of hardware and software examined met the listed requirements of the TEXAS ELECTION CODE and TEXAS ADMINISTRATIVE CODE.
2. The ballot numbering and randomization required under Texas law will necessitate some manual actions with the Verity 2.3 System because the numbering system within the Verity 2.3 will not produce only numeric serial numbers and they cannot be randomized as required by Texas law.

3. The controller used with a series of daisy chained Duo and the Touchwriter devices present another layer of interaction that has both benefits and detriments. The cast vote record from the Duo is not sent back to the controller, but does allow for more efficiency in the poll worker's activities. However, the daisy chaining of devices does not present a security concern because each machine maintains independent security measures and audit logs.
4. The audit logs for all of the machines and software are exportable to an excel or pdf format that use plain language and become sortable once exported. This is important to make the audit logs of value if ever needed in connection with a contest or if used for quality control purposes.
5. As with many systems, the Verity 2.3 System is susceptible to certain levels of corruption by a bad actor that can introduce false data or reset the system at inappropriate times. However, there is no way to effectively remove all human interactions with any voting system, so this risk must be mitigated through security measures and vetting at the local election level.
6. The conversion of older Verity systems to the 2.3 System (to allow for the use of the Duo device) will require a substantial amount of cost and work, but still appears to be less costly than the purchase of a new system.

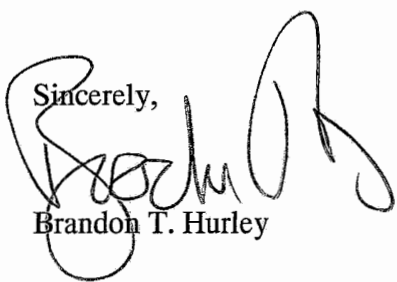
RECOMMENDATION

Based on the foregoing observations and my examination of the Verity 2.3 System, its accompanying literature and the representations made by Hart officials both in its literature and at the examination, I recommend that the Hart 2.3 System be certified as compliant with the requirements of the TEXAS ELECTION CODE and the TEXAS ADMINISTRATIVE CODE.

This report should not be construed as an approval of any of the technical aspects of the Verity 2.3 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