

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF STATE

REPORT CONCERNING THE REEXAMINATION RESULTS OF THE HART
INTERCIVIC'S ESLATE ELECTRONIC VOTING SYSTEM 6.2.1



Issued By:

A handwritten signature in cursive script that reads "Carol Aichele".

Carol Aichele

Secretary of the Commonwealth

September 11, 2012

I. INTRODUCTION

Article XI-A of the Pennsylvania Election Code, 25 P.S. § 3031.1 et seq., authorizes the use of electronic voting systems. Section 1105-A of the Pennsylvania Election Code, 25 P.S. § 3031.5, requires that the Secretary of the Commonwealth examine all electronic voting systems used in any election in Pennsylvania and that the Secretary make and file a report stating whether, in her opinion, the electronic voting system can be safely used by voters and meets all of the applicable requirements of the Election Code.

On March 14, 2007, M. Glenn Newkirk, President of InfoSENTRY Services, Inc., a consultant retained by the Secretary¹ to conduct an examination of the Hart InterCivic's eSlate Electronic Voting System 6.2.1 (hereafter referred to as the "Hart Voting System"), issued a report recommending that the Secretary certify the Hart Voting System. On April 6, 2007, the Secretary certified the Hart Voting System for use in elections in the Commonwealth and issued a report, in accordance with Section 1105-A(b) of the Pennsylvania Election Code, 25 P.S. § 3031.5(b).

Section 1105-A(a) of the Pennsylvania Election Code provides that, upon payment of a reexamination fee, "[a]ny ten or more persons, being qualified registered electors of this Commonwealth, may, at any time, request the Secretary of the Commonwealth to reexamine any electronic voting system theretofore examined and approved." 25 P.S. § 3031.5(a). By letter dated August 25, 2011, a requisite number of electors formally requested that the Secretary conduct a reexamination of the Hart Voting System.

In 2006, the Pennsylvania Department of State, acting through then-Secretary of the Commonwealth Pedro A. Cortés, initially rejected similar requests from other groups of electors who sought reexaminations of different electronic voting systems on the basis that the reexaminations were not necessary because (1) the electronic voting systems had only recently been examined and approved by the Secretary, and (2) there was no indication of irregularities or deficiencies that had arisen subsequent to the examinations to warrant reexaminations.

Subsequent to, and partially as a result of, these decisions by the Department of State, a group of Pennsylvania electors commenced suit (by means of a Petition for Review in the Commonwealth Court) claiming, among other things, that the Secretary of the Commonwealth has a mandatory duty under Section 1105-A of the Pennsylvania Election Code, 25 P.S. § 3031.5, to conduct a reexamination when requested to do so in accordance with the statute. In

¹ Section 1107-A of the Election Code provides that "[n]o electronic voting system shall, upon any examination or reexamination, be approved by the Secretary of the Commonwealth, or by any examiner appointed by [her], unless it shall be established that such system, at the time of such examination or reexamination" meet specified requirements. 25 P.S. § 3031.7 (emphasis added).

overruling the Secretary's preliminary objections to the Petition for Review, the Commonwealth Court unanimously agreed. See, e.g., Banfield v. Cortés, 922 A.2d 36, 48 (Pa. Commw. Ct. 2007) (concurring and dissenting op.) ("Upon receipt of a request for reexamination, the Secretary must examine the electronic voting system.... It is up to the Secretary how to examine the electronic voting system, but examine it [she] must under the most straightforward reading of Section 1105-A(a) of the Election Code.")²

In July 2011, this Secretary, having only recently assumed the office, evaluated Section 1105-A of the Pennsylvania Election Code and the duties of the Secretary of the Commonwealth to reexamine electronic voting systems when requested to do so pursuant to and consistent with the statute. Based on her evaluation of the law, including the interpretation reflected in the Commonwealth Court's Banfield opinions, the Secretary determined that she had a duty to reexamine the Hart Voting System in response to the 2011 request.

Accordingly, the Secretary appointed Jack Cobb ("Examiner"), Laboratory Director of Pro V&V, Inc., as a professional consultant to conduct a reexamination of the Hart Voting System pursuant to Section 1105-A(a) of the Pennsylvania Election Code, 25 P.S. § 3031.5(a). The Examiner performed the reexamination on February 27, 2012, in Hearing Room 1 of the Commonwealth Keystone Building, 400 North Street, Harrisburg, Pennsylvania. Ian Harlow, Deputy Commissioner of the Department's Bureau of Commissions, Elections and Legislation, and Kathleen Kotula, Assistant Counsel for the Department, represented the Secretary of the Commonwealth. Linda Herod, State Certification Manager, and Travis Harell, Director of Product Management and Compliance, represented Hart Intercivic ("Hart"), the vendor of the Hart Voting System. The reexamination was open to the public and was video recorded by staff members of the Department's Bureau of Commissions, Elections and Legislation. Six members of the public attended the reexamination: Larry Blosser, Sr., and Al Ambrosini of Fayette County; Randall O. Wegner and Diane Skilling of Lancaster County; Marybeth Kuznik of VotePA; and Robert Fitzgerald of Buchanan, Ingersoll & Rooney PC.

II. THE HART VOTING SYSTEM

The following firmware/software, hardware and peripheral components making up the Hart Voting System were presented for reexamination:

- Firmware/Software
 - Ballot Now, version 3.3.11;
 - Ballot Origination Software System ("BOSS"), version 4.3.13;
 - eSlate Cryptographic Modules ("eCMs") Manager, version 1.1.7;
 - eSlate/eSlate Disabled Access Unit ("DAU"), version 4.2.13;
 - Judge's Booth Controller ("JBC"), version 4.3.1;
 - Rally, version 2.3.7;

² The Banfield matter remains pending before the Commonwealth Court at No. 213 M.D. 2006.

- SERVO, version 4.2.10;
 - Tally, version 4.3.10; and
 - Verifiable Ballot Option (“VBO”) Unit, version 1.8.3.
- Hardware
 - eSlate, Model 3000;
 - eSlate DAU, Model 5000;
 - JBC, Model 1000;
 - BOSS Workstation, Model Dell Optiplex 740;
 - Tally Workstation, Model Dell Optiplex 740; and
 - SERVO server, Model Dell Latitude D530.
 - Peripherals
 - Mobile Ballot Box (“MBB”);
 - Firmware Laptop, Dell Latitude D610;
 - Commercial Off-The-Shelf (“COTS”) Printer; and
 - Headphones.

The following paragraphs in this section briefly describe the Hart Voting System and are adopted in large part from Section 2.0 (“System Overview and Identification”) of the Test Report for Re-examination of the of Hart Voting System 6.2.1, a report issued by the Examiner on August 21, 2012.

The Hart Voting System is an electronically secure Direct Recording Electronic (“DRE”) voting system connected via cable made up of the following components:

- BOSS;
- MBBs;
- eCMs;
- eCM Manager;
- eSlate;
- eSlate DAU;
- JBC;
- Tally; and
- SERVO.

The BOSS component is used to generate the electronic ballot styles for the provided election definitions. The election data is then written to an MBB for transportation of the election data. The JBC is loaded at the polling place with the MBB and connected to the eSlate and eSlate DAU units. The eSlate and eSlate DAU units present the ballot and accepts the selections made by the voter, which are captured by the units and transmitted to the JBC. The JBC records the selections as a Cast Vote Record (“CVR”), which is written to the MBB. The

MBBs are returned to the central location for the county and processed. The Tally component is used to accumulate and report the voted data.

The eCM Manager component is used to program eCM's. The eCM's are USB devices used to access secure functions in BOSS, Tally and SERVO. The SERVO component is used to reset the eSlate, eSlate DAU's and JBC prior to an election. The SERVO can also be used to directly access the memory of eSlate, eSlate DAU and JBC units to retract voted data and audio records.

III. REEXAMINATION PROCEDURES AND RESULTS

A. Reexamination Process and Procedures

To ascertain whether the Hart Voting System can be safely used by the voters at elections in the Commonwealth and meets all the requirements of the Pennsylvania Election Code, the Examiner developed test protocols for the reexamination.³ The test protocols separated the requirements of Article XI-A of the Pennsylvania Election Code, sections 1101-A to 1122-A, 25 P.S. §§ 3031.1 – 3031.22, into four main areas of test execution: (1) Review; (2) Targeted Functionality; (3) System Integration; and (4) Penetration Analysis.

“Review” testing consisted of analyzing ITA⁴ and other third-party reports for specific tests pertaining to the requirements of the Pennsylvania Election Code and verifying that the Hart Voting System meets those requirements. The Examiner conducted Review testing after the February 27, 2012, reexamination to determine compliance with the following sections of the Pennsylvania Election Code:

- 1105-A(a), 25 P.S. § 3031.5(a), requiring that an electronic voting system “ha[ve] been examined and approved by a federally recognized independent testing authority” and that it “meet any voting system performance and test standards established by the Federal Government;”
- 1107-A(11), 25 P.S. § 3031.7(11), requiring that an electronic voting system be “suitably designed for the purpose used, ... constructed in a neat and workmanlike manner of durable material of good quality, ... safely and efficiently useable in the conduct of elections and, with respect to the counting of ballots cast at each district, ... suitably designed and equipped to be capable of absolute accuracy, which accuracy shall be demonstrated to the Secretary of the Commonwealth;”

³ The test protocols, as well as the time and place of the reexamination, were published on the website of the Department of State prior to the start of the reexamination on February 27, 2012.

⁴ Section 1105-A(a) of the Election Code requires that an electronic voting system be examined and approved “by a federally recognized independent testing authority,” or ITA. 25 P.S. § 3031.5(a).

- 1107-A(13), 25 P.S. § 3031.7(13), requiring that an electronic voting system, “[w]hen properly operated, records correctly and computes and tabulates accurately every valid vote registered;”
- 1107-A(14), 25 P.S. § 3031.7(14), requiring that an electronic voting system be “safely transportable;” and
- 1107-A(15), 25 P.S. § 3031.7(15), requiring that an electronic voting system be “so constructed that a voter may readily learn the method of operating it.”

“Targeted Functionality” testing consisted of single-thread test cases designed to ascertain whether the Hart Voting System complies with the requirements set forth in the following sections of the Pennsylvania Election Code:

- 1107-A(1), 25 P.S. § 3031.7(1), requiring that an electronic voting system “[p]rovides for voting in absolute secrecy and prevents any person from seeing or knowing for whom any voter, except one who has received or is receiving assistance as prescribed by law, has voted or is voting;”
- 1107-A(2), 25 P.S. § 3031.7(2), requiring that an electronic voting system, “[p]rovides facilities for voting for such candidates as may be nominated and upon such questions as may be submitted.”
- 1107-A(3), 25 P.S. § 3031.7(3), requiring that an electronic voting system “[p]ermits each voter, at other than primary elections, to vote a straight political party ticket by one mark or act and, by one mark or act, to vote for all the candidates of one political party for presidential electors and, by one mark or act, to vote for all the candidates of one political party for every office to be voted for, and every such mark or act shall be equivalent to and shall be counted as a vote for every candidate of the political party so marked including its candidates for presidential electors, except with respect to those offices as to which the voter has registered a vote for individual candidates of the same or another political party or political body, in which case the automatic tabulating equipment shall credit the vote for that office only for the candidate individually so selected, notwithstanding the fact that the voter may not have individually voted for the full number of candidates for that office for which he was entitled to vote;”
- 1107-A(4), 25 P.S. § 3031.7(4), requiring that an electronic voting system “[p]ermits each voter, at other than primary elections, to vote a ticket selected from the nominees of any and all political parties, from the nominees of any and all political bodies, and from any persons whose names are not in nomination and do not appear upon the official ballot;”
- 1107-A(5), 25 P.S. § 3031.7(5), requiring that an electronic voting system “[p]ermits each voter to vote for any person and any office for whom and for which he is lawfully entitled to vote, whether or not the name of such person appears upon the ballot as a candidate for nomination or election;”

- 1107-A(7), 25 P.S. § 3031.7(7), requiring that an electronic voting system, “[i]f it is of a type that registers the vote electronically, ... preclude each voter from voting for more persons for any office than he is entitled to vote for or upon any question more than once;”
- 1107-A(10), 25 P.S. § 3031.7(10), requiring, in pertinent part, that an electronic voting system, “[i]f it is of a type that registers the vote electronically, ... permit each voter to change his vote for any candidate or upon any question appearing on the official ballot up to the time that he takes the final step to register his vote and to have his vote computed;”⁵ and
- 1107-A(16), 25 P.S. § 3031.7(16), requiring that the “district component of the automatic tabulating equipment” of an electronic voting system that provides for the “computation and tabulation of votes at the district level” include (i) a “visible” public counter that “shall show during any period of operation the total number of ballots entered for computation and tabulation;” (ii) lock(s) that “absolutely” prevent “all operation of the tabulation element of the automatic tabulating equipment ... after the polls are closed or where the tabulation of votes is completed;” (iii) construction or control capabilities “that, during the progress of voting, ... preclude every person from seeing or knowing the number of votes theretofore registered for any candidate or question; and ... preclude every person from tampering with the tabulating element;” (iv) a mechanism or capability that rejects over votes but, “if used during the period of voting, it may also have the capacity to indicate to a voter that he has improperly voted for more candidates for any office than he is entitled to vote for, and in such case it shall have the capacity to permit the voter to mark a new ballot or to forego his opportunity to make such correction;” and (v) an “element which generates a printed record at the beginning of its operation which verifies that the tabulating elements for each candidate position and each question and the public counter are all set to zero and with an element which generates a printed record at the finish of its operation of the total number of voters whose ballots have been tabulated, the total number of votes cast for each candidate whose name appears on the ballot, and the total number of votes cast for, or against, any question appearing on the ballot.”

“System Integration” testing sought to ascertain whether the Hart Voting System meets all of the requirements of the Pennsylvania Election Code that can be met by the execution of an entire election. The Examiner created two election definitions, a general election and a closed primary election, to test and measure specific input devices, voting patterns, and results. Pre-voting reports were generated, consisting of a ballot proof report, precinct summary report, and

⁵ Section 1107-A(10) of the Election Code distinguishes between electronic voting systems that register votes electronically, like the Hart Voting System, and those that “use paper ballots or ballot cards to register votes.” 25 P.S. § 3031.7(10). For the latter, the Pennsylvania Election Code requires that “the system shall provide that a voter who spoils his ballot may obtain another ballot; any ballot thus returned shall be immediately cancelled and at the close of the polls shall be enclosed in an envelope marked ‘Spoiled’ which shall be sealed and returned to the county board.” 25 P.S. § 3031.7(10).

election summary report. The polls were opened and precinct tabulator zero proof reports were generated. The Examiner, staff members from the Bureau of Commissions, Elections and Legislation, and employees from the Bureau of Management Information Systems and other bureaus within the Pennsylvania Department of State, input a complex voting pattern consisting of distinct combinations of vote selection, as documented in the test protocols. The polls were closed and results reports were generated, including cast vote records and ballot images. The voted data was then transferred to the election management system ("EMS"), and election summary reports, precinct summary reports, and ballot images were printed. At the conclusion of the test, the Examiner conducted a statistical recount of at least 10% of the votes cast by comparing the documented voting pattern with the cast vote records and ballot images. The procedures identified each ballot by the distinct voting pattern that was input. The Examiner also generated a backup of the EMS database and retained a copy with the other test data.

System Integration testing tested proprietary hardware, firmware/software and peripherals, as well as commercial, off-the-shelf materials configured as a precinct- or district-count system. While System Integration testing addressed many of the requirements of the Pennsylvania Election Code that were also the subject of Targeted Functionality testing, System Integration testing was designed to test compliance with the following additional sections:

- 1101-A, 25 P.S. § 3031.1, defining "electronic voting system" to mean "a system in which one or more voting devices are used to permit the registering or recording of votes and in which such votes are computed and tabulated by automatic tabulating equipment. The system shall provide for a permanent physical record of each vote cast;"
- 1107-A(4), 25 P.S. § 3031.7(4), requiring that an electronic voting system "[p]ermits each voter, at other than primary elections, to vote a ticket selected from the nominees of any and all political bodies, and from any persons whose names are not in nomination and do not appear upon the official ballot;"
- 1107-A(6), 25 P.S. § 3031.7(6), requiring that an electronic voting system "[p]ermits each voter to vote for as many persons for any office as he is entitled to vote for and to vote for or against any question upon which he is entitled to vote and precludes each voter from voting or from having his vote tabulated for any candidate, or upon any question, for whom or upon which he is not entitled to vote;"
- 1107-A(8), 25 P.S. § 3031.7(8), requiring that an electronic voting system "[p]recludes each voter from voting or from having his vote tabulated more than once for any candidate for the same office or upon any question, except in districts and for offices where cumulative voting is authorized by law;"
- 1107-A(9), 25 P.S. § 3031.7(9), requiring that an electronic voting system "[p]ermits each voter at a primary election to vote only for the candidates seeking nomination by a political party in which such voter is registered and enrolled, and for any candidate for nonpartisan nomination, and for any question upon which he is entitled to vote;" and

- 1117-A, 25 P.S. § 3031.17, requiring that a “county board of elections, as part of the computation and canvass of returns, shall conduct a statistical recount of a random sample of ballots after each election using manual, mechanical or electronic devices of a type different than those used for the specific election. The sample shall include at least two (2) per centum of the votes cast or two thousand (2,000) votes whichever is the lesser.”

“Penetration Analysis” testing sought to ascertain whether the Hart Voting System meets the requirement of Section 1107-A(12) of the Pennsylvania Election Code, which requires that an electronic voting system “provides acceptable ballot security procedures and impoundment of ballots to prevent tampering with or substitution of any ballots or ballot cards.” 25 P.S. § 3031.7(12).

Precinct tabulation devices were configured as if for delivery to a polling place from a warehouse; this included all suggested seals and locks. The Examiner inspected the device for the ability to tamper with the transportation case and the device inside the case. The inspection examined the ports, the outer case, and memory devices from the aspect of the device as delivered to the polling place and configured for voting. The Examiner also examined both the precinct device and the EMS for password management of administrative functions and ensured the system counter cannot be reset by unauthorized persons. The Examiner photographed the configuration and analyzed the configuration for possible vulnerabilities.

B. Reexamination Specifications

In accordance with the test protocols, the reexamination of the Hart Voting System occurred in an environmentally controlled room, which was selected primarily because it was large enough to hold the system, the participants, and the public. The room was configured such that the Examiner, the representatives of the Secretary of the Commonwealth, and Hart each had their own independent work areas. Members of the public were allowed to observe the reexamination.⁶

SLI Global Solutions, a trusted source, provided the Department’s Bureau of Commissions, Elections and Legislation with a trusted build of the Hart Voting System prior to the date of the reexamination. On the day of the reexamination, Hart provided three precinct tabulation devices, the EMS with the test election definitions, and the components necessary to load the trusted build onto the precinct tabulation devices. The Examiner provided Hart with the firmware/software that had been provided by the trusted source. Hart then loaded the firmware/software onto the required media and installed the firmware/software on each of the

⁶ The Secretary published the time and place of the reexamination on the Department of State website prior to the date of reexamination. Additionally, the Department sent a letter to the primary contact for the group of electors who requested the reexamination notifying them of the time and place of the reexamination.

precinct tabulation devices. Once the firmware/software was loaded onto the precinct tabulation devices, Hart was not allowed access to the internal components of the devices without consent of the Examiner or a representative of the Secretary of the Commonwealth.

C. Reexamination Results

On August 21, 2012, the Examiner issued the test report for the Hart Voting System.

1. Review Testing Results

The Review testing performed by the Examiner demonstrates that the Hart Voting System meets the relevant requirements of the Pennsylvania Election Code.

Specifically, the ITA reports and certifications submitted by Hart satisfy the requirements of Section 1105-A(a) of the Pennsylvania Election Code, 25 P.S. § 3031.5(a); the Hart Voting System has been examined and approved by an ITA as meeting the applicable performance and test standards established by the federal government.

The design requirements of Sections 1107-A(11) and (14) of the Election Code, 25 P.S. §§ 3031.7(11) & (14), are met by the documented Product Safety Test and Accuracy Test in the submitted ITA report, which the Examiner deemed acceptable. Additionally, the accuracy requirements of Sections 1107-A(11) and (13), 25 P.S. §§ 3031.7(11) & (13), are met by the documented Accuracy Test in the submitted ITA report, which the Examiner found to be acceptable.

Section 1107-A(14) of the Election Code, 25 P.S. § 3031.7(14), is further met by the combination of documented Hardware Non-Operating Environmental Tests performed by the ITA, which included: bench handling, vibration, low temperature, high temperature, and humidity. These components tests were designed to test the storage of precinct tabulation devices between elections, as well as transportation between the storage facility and the polling place.

Section 1107-A(15) of the Election Code, 25 P.S. § 3031.7(15), is met by the Usability Report provided, which the Examiner deemed acceptable. Further, the Examiner did not encounter any issues performing the method of operation for standard voting sessions or ADA voting sessions during execution of the reexamination. Additionally, staff members from the Pennsylvania Department of State were used to input voting data for the System Integration testing, and no operational issues were reported.

2. Targeted Functionality Testing Results

The protocols relating to Targeted Functionality testing developed and published prior to the reexamination consisted of nine (9) separate tests. The Examiner conducted each of these tests during the reexamination with necessary modifications, as indicated below (see Part III.D).

No issues or material anomalies were experienced during these tests, and the objective criteria established in the test protocols were met.

Specifically, the reexamination of the Hart Voting System demonstrates that, if set up pursuant to item four (4) of the Directive Concerning the Use, Implementation and Operation of Electronic Voting Systems by the County Boards of Elections issued by the Secretary of the Commonwealth on April 28, 2009, the Hart Voting System provides the requisite voter secrecy in compliance with Section 1107-A(1) of the Election Code, 25 P.S. § 3031.7(1). Additionally, the Hart Voting System successfully records and reports:

- votes for “1 of 1,” “N of M,” and “Question” contests for both a standard voting session and an ADA voting session in compliance with Section 1107-A(2), 25 P.S. § 3031.7(2);
- straight party votes and demonstrated the “Pennsylvania Method” of straight party voting for both a standard voting session and an ADA voting session, meeting the requirements of Section 1107-A(3), 25 P.S. § 3031.7(3); and
- straight party and write-in votes for both a standard voting session and an ADA voting session, meeting the requirements of Section 1107-A(4) & (5), 25 P.S. §§ 3031.7(4) & (5).

The Hart Voting System also successfully prohibits a voter from selecting more than the number of allowable selections, including write-in votes, for both a standard voting session and an ADA voting session, in compliance with Section 1107-A(7), 25 P.S. § 3031.7(7). The Hart Voting System provides a voter with a review screen and allows a voter to return to either the beginning of the ballot or an individual contest to make changes to his or her selection(s) before casting the ballot for both a standard voting session and an ADA voting session, meeting the requirements of Section 1107-A(10), 25 P.S. § 3031.7(10). Lastly, the Hart Voting System provides a public counter that increments with each cast vote; provides the ability to be locked after the polls are closed; precludes the re-opening of the polls after they are closed; possesses design features that allow tamper evident locks and seals to be placed on the device; and provides a zero proof and results report, as required under Section 1107-A(16), 25 P.S. § 3031.7(16).

3. System Integration Testing Results

The Hart Voting System successfully completed both the general and closed primary elections. The Examiner experienced no issues or anomalies during these tests, and the Hart Voting System met the objective criteria set forth in the test protocols. Accordingly, the Hart Voting System meets the requirements of Sections 1101-A and 1117-A of the Pennsylvania Election Code, 25 P.S. §§ 3031.1 & 3031.17, in that the system is able to provide for a permanent physical record in the format of the cast vote record and ballot images that can be used to conduct a statistical recount. The System Integration testing further confirmed that the

Hart Voting System complies with Section 1107-A(4), 25 P.S. § 3031.7(4), in that the system successfully allowed voters in a general election to vote for candidates from all parties and political bodies, including write-in candidates. The Hart Voting System complies with Section 1107-A(9), 25 P.S. § 3031.7(9), in that test voters in the primary election were only able to vote for candidates seeking nomination from their party and the system rejected attempts to vote for candidates seeking nomination from the other party. The Hart Voting System meets the requirements for Sections 1107-A(6) and (8), 25 P.S. §§ 3031.7(6) & (8), in that the test voters cast votes on different ballot styles for candidates and questions and the Hart Voting System precluded test voters from over voting.

4. Penetration Analysis Results

During the performance of this analysis, the Hart Voting System provided acceptable ballot security procedures and impoundment of ballots to prevent tampering with or substitution of any ballots or ballot cards. It also provided acceptable password management and restriction of access to administrative functions. Therefore, the Hart Voting System meets the requirements of Section 1107-A(12) of the Pennsylvania Election Code, 25 P.S. § 3031.7(12).

D. Observations

1. Review Testing Observations

As a result of the Review testing, the Examiner concluded that the Hart Voting System complies with the requirements of the relevant sections of the Pennsylvania Election Code.

The Examiner noted that although the submitted reports did not contain specific data for an Accuracy Test, see Sections 1107-A(11) and (13) of the Election Code, 25 P.S. §§ 3031.7(11) & (13), a test to meet the accuracy requirements of the Federal Election Commission 2002 Voting System Standards must be performed to receive an NASED Certification. Given that the Hart Voting System received such federal certification, it can be determined that the Hart Voting System met the requirement of this Accuracy Test during the federal testing campaign.

2. Targeted Functionality Testing Observations

As a result of the Targeted Functionality testing, the Examiner concluded that the Hart Voting System complies with the requirements of the relevant sections of the Pennsylvania Election Code.

The Examiner noted that while the observer did not report being able to see voter inputs, the voting system screen could be seen from other viewing angles while executing both the standard voting and ADA test cases for Section 1107-A(1) of the Election Code, 25 P.S. § 3031.7(1), which requires an electronic voting system to provide for voting in secrecy. The Examiner concluded, however, that the Hart Voting System, if set up pursuant to item four (4) of the Directive Concerning the Use, Implementation and Operation of Electronic Voting Systems

by the County Boards of Elections issued by the Secretary of the Commonwealth on April 28, 2009, provides the requisite voter secrecy so that an observer is unable to see whom a voter voted for, in compliance with the Pennsylvania Election Code.

Additionally, the Examiner noted that duplicate write-in names could be input for an “N of M” contest during the execution of the test case for Section 1107-A(5) of the Election Code, 25 P.S. § 3031.7(5), which requires that an electronic voting system permit a voter to vote for any candidate or write-in a candidate. The test continued and an attempt to adjudicate the duplicate was made from the device’s results report. There was no indication on the results reports of the same name being input twice on the same ballot for the same contest. However, after the MBB’s were loaded into the Tally application, functionality existed to allow the Examiner to properly adjudicate the duplicate write-in votes, and he concluded that the Hart Voting System meets the requirements of the relevant section of the Pennsylvania Election Code.

3. System Integration Testing Observations

The Examiner did not observe any issues or anomalies during the execution of the System Integration testing. As noted above, as a result of this testing, the Examiner concluded that the Hart Voting System complies with the requirements of the relevant sections of the Pennsylvania Election Code.

4. Penetration Analysis Observations

The Examiner did not observe any issues or anomalies during the execution of the Penetration Analysis testing. As noted above, as a result of this testing, the Examiner concluded that the Hart Voting System complies with the requirements of the relevant sections of the Pennsylvania Election Code.

IV. CONDITIONS FOR CERTIFICATION

Given the results of the February 27, 2012, reexamination and the findings of the Examiner as set forth in his August 21, 2012, report, the Secretary of the Commonwealth certifies the Hart Voting System in accordance with the conditions detailed in the report dated April 6, 2007, and the following additional condition:

- Pennsylvania counties using the Hart Voting System must comply with the Directive Concerning the Use, Implementation and Operation of Electronic Voting Systems by the County Boards of Elections issued by the Secretary of the Commonwealth on April 28, 2009, and in particular adhere to item four (4) of the directive when setting up and positioning the precinct tabulation devices in the polling place to assure compliance with the constitutional and statutory requirements that secrecy in voting be preserved (see Pa. Const. Art. VII. § 4; and Section 1107-A(1) of the Election Code, 25 P.S. § 3031.7(1)).

V. RECOMMENDATIONS

The Secretary of the Commonwealth reaffirms the recommendations in the Secretary's certification report dated April 6, 2007.

VI. CONCLUSION

As a result of the reexamination conducted on February 27, 2012, and after consultation with the Department's staff and the Examiner, the Secretary of the Commonwealth concludes that the Hart Voting System can be safely used by voters at elections as provided in the Pennsylvania Election Code and meets all of the requirements set forth in the Code, **provided it is implemented with the conditions listed in Section IV of this report, as well as all conditions listed in the April 6, 2007, report.** Accordingly, the Secretary reaffirms certification of the Hart Voting System, and continues to approve the Hart Voting System for use in this Commonwealth.

In addition, pursuant to the Directive on Electronic Voting Systems issued by the Secretary of the Commonwealth on August 8, 2006, the Directive Concerning the Use, Implementation and Operation of Electronic Voting Systems by the County Boards of Elections issued on April 28, 2009, and Section 1105-A(d) of the Pennsylvania Election Code, 25 P.S. § 3031.5(d), this certification and approval is valid only for the voting system discussed in this Report. If the vendor or a County Board of Elections makes **any** changes to the Hart Voting System subsequent to the date of its reexamination, it must **immediately** notify the Pennsylvania Department of State and the relevant federal testing authority or laboratory. Failure to do so may result in the decertification of the Hart Voting System in the Commonwealth of Pennsylvania.

All jurisdictions that have implemented the Hart Voting System pursuant to the certification of April 6, 2007, must implement the Hart Voting System under this certification and must comply with the directives found in this Report, previous reports for the Hart Voting System, and any directives issued by the Secretary of the Commonwealth regarding the use of this System, in accordance with Section 1105-A(a)-(b) of the Pennsylvania Election Code, 25 P.S. § 3031.5(a)-(b).

The Hart Voting System will accommodate no more than 300 voters per unit.