COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF STATE

REEXAMINATION RESULTS OF
UNILECT CORPORATION'S
PATRIOT DIRECT RECORDING SYSTEM

Issued by:

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REEXAMINATION OF UNILECT CORPORATION
PATRIOT DIRECT RECORDING SYSTEM
A REPORT BY THE SECRETARY
OF THE COMMONWEALTH OF PENNSYLVANIA

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 Election Code, 25 P.S. § 3031.5 requires all electronic voting systems to be examined and approved by the Secretary of the Commonwealth before use in any election in Pennsylvania. The same section also provides for the reexamination of previously certified systems at the request of ten or more registered electors.

The Patriot Direct Recording System (hereinafter referred to as "System") was originally certified for use by the Secretary of the Commonwealth on August 15, 1994. Beaver and Greene Counties purchased the System in 1998, and Mercer County purchased the System in 2001.

Upon the request of nineteen (19) registered electors from Beaver County, and payment of the required $450.00 reexamination fee received in the Department of State's Bureau of Commissions, Elections, and Legislation, the Department contacted the UniLect Corporation and scheduled a reexamination of the Patriot Direct Recording System for Tuesday, February 15, 2005. The result of the February 15, 2005 reexamination was the decertification of the System by the Secretary on April 7, 2005.

After consultation with the Beaver, Greene, and Mercer County Commissioners, and in consideration of the proximity of the May 17, 2005 Municipal Primary, the Secretary, exercising his authority to reexamine systems under section 1105-A(a) of the Election Code, 25 P.S. § 3031.5(a), scheduled a reexamination of the System for April 22, 2005.

The Secretary of the Commonwealth retained Dr. Michael I. Shamos, Ph.D., J.D. as an expert to conduct this electronic voting system reexamination[1]. Kenneth Rapp, Deputy Secretary for Regulatory Programs; Albert Masland, Chief Counsel; William Boehm, Director of Policy; Harry A VanSickle, Commissioner of the Bureau of Commissions,

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[1] Dr. Shamos also served as the expert consultant with respect to the previous reexamination on February 15, 2005.

Elections and Legislation; L. Lawrence Boyle, Deputy Chief Counsel; Jonathan Marks, Chief of the Division of Elections; and Patrick Williams, Help America Vote Act Specialist represented the Secretary of the Commonwealth. Also attending the reexamination were Mercer County Commissioner Olivia Lazor, members of the public, and the press.

II. THE PATRIOT DIRECT RECORDING SYSTEM

The System is a direct recording electronic system with a liquid crystal display (LCD). It does not require the use of paper ballots or punch cards. The following paragraphs in this section briefly describe the functions of the System as summarized by the vendor.

The ballot is displayed on the LCD touch screen, usually on multiple pages. The voter can select the appropriate screen by touching the appropriate page box on the screen and select his/her chosen candidate by touching the candidate's box on the screen illuminating the candidate's name while an "X" appears next to his name. The selected candidate's name remains illuminated until the voter selects another page or deselects the candidate's name by touching the candidate's box again. The voter may write in a candidate's name by touching the write-in box and spelling the name out on the keyboard that appears on the screen.

After the voter has completed voting, a review screen appears listing all of the candidates selected by the voter for each office. The voter can then change a selection(s), or cast his or her vote.

Using a personal computer, election information can be programmed and stored on an "infopack," which is inserted into a "precinct control unit" (PCU), sealed and sent to the polling place. Each infopack will only work with the PCU specified during programming for an election.

At the polling place, district election officials break a seal and open the poll. At that time, the system generates a report to show that each candidate has zero votes prior to allowing individuals to vote.

At the appropriate time, district election officials break another seal to close the poll. Multiple copies of a totals report are printed that contain cumulative results for each

candidate, and the infopack is taken to a central location designated by the county where the totals from that precinct are combined with the others.

III.   EXAMINATION PROCEDURES AND RESULTS

The reexamination was conducted to test for the statutory requirements specified in section 1107-A of the Election Code, 25 P.S. § 3031.7. The vendor demonstrated the setup, opening of polls, voting, close of polls, and election night tabulation features of the System.   The expert asked questions of the vendor and requested demonstrations of various features before conducting two Pennsylvania Standardized Tests. The first Test is a set of 12 Municipal Primary ballots (6 Democratic and 6 Republican), and the second Test is a set of 12 Municipal Election ballots. Both Tests are designed to ensure the electronic voting system's compliance with the Election Code.

Although the System tabulated all ballots correctly during the aforesaid Tests the System must not only meet the statutory requirements, but must also be deemed safe for use in elections. Based on the totality of the reexamination, including the answers to questions provided by the vendor, the history of the systems functionality, and the advice provided by the Department's contracted expert, the following major concerns are noted with respect to compliance with the Election Code:

Reliability, Safety, and Efficiency

During the reexamination, the Department and its expert again observed, similar to the February 15th reexamination, that the System failed to reliably sense touches. This behavior continues to raise concerns that voters may inadvertently cast undervotes for various offices. Beginning with the reexamination of February 15, 2005, the vendor has been given numerous opportunities to explain the significant undervote problems experienced in all three of the Pennsylvania counties that utilize the system. As noted at length in the report submitted by the Department's expert, the vendor's explanations have been unsatisfactory. This shortcoming is deemed sufficient, in and of itself, to preclude the use of the system in the Commonwealth. Permitting a scenario in which one of twenty voters' intentions will be lost would be a breach of the Department's fiduciary responsibilities.

Therefore, the System is not "safely and efficiently useable in the conduct of elections" nor is it "suitably designed and equipped to be capable of absolute accuracy," as required by section 1107-A(11) of the Election Code, 25 P.S. § 3031.7(11). The failure to

recognize voter choices also violates section 1107-A(13) of the Election Code, 25 P.S. § 3031.7(13), which requires accurate tabulation of votes cast.

The Department also observed during the reexamination of April 22, 2005 that the System provides for a "write-in exception" report, which is generated by the Precinct Control Unit. This exception report enables precinct election officials to view images of individual write-in ballots on which more than one write-in vote was cast in a single office to determine if an overvote occurred. The exception report, however, cannot be produced during the central tabulation at the county. Therefore, the system does not comply with section 1107-A(13) of the Election Code, 25 P.S. § 3031.7(13), which requires that an electronic voting system "records correctly and computes and tabulates accurately every valid vote registered."

System Security

As presented at the reexamination of April 22, 2005, the vendor did propose a solution intended to correct the security deficiencies observed during the February 15, 2005 reexamination. However, the System continues to allow manual adjustment of vote totals without a sufficient audit trail. The system merely records the fact that an adjustment was made and the time at which it was made. These observations continue to raise questions about the System's ability to meet the requirements of section 1107-A(12) of the Election Code, 25 P.S. § 3031.7(12), regarding ballot security procedures to prevent ballot tampering.

Other Concerns

In addition to the concerns set forth above, the Department and its expert found the following deficiencies during the reexamination of April 22, 2005:

1. The System does not appear to possess a current federal qualification. Apparently, the vendor has made several updates to the System's source code, firmware and software since it was initially certified. The vendor stated that he had not yet submitted those updates to an independent testing authority for review.

2. In many respects, the System is unreliable. It exhibits several behaviors, as detailed in Dr. Shamos' report, that could lead to voter confusion. Because these behaviors make it extremely difficult for a voter to "readily learn the method of operating the System," it does not comply with section 1107-A(15) of the Election Code, 25 P.S. § 3031.7(15).

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IV.   CONCLUSIONS

For the reasons listed in Section III of this report, resulting from the reexamination conducted on April 22, 2005, and after consultation with the Department's staff and upon review of the expert's report, the Secretary of the Commonwealth hereby denies certification of the UniLect Patriot Direct Recording System for use in elections in the Commonwealth of Pennsylvania in accordance with section 1105-A(c) of the Election Code, 25 P.S. § 3031.5(c).