COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF STATE

EXAMINATION RESULTS OF
DANAHER CONTROLS' GUARDIAN
ELECTION MANAGEMENT SYSTEM

Issued by:

Kim Pizzingrilli

Kim Pizzingrilli
Secretary of the Commonwealth
October 19, 1999

EXAMINATION OF DANAHER CONTROLS'
GUARDIAN ELECTION MANAGEMENT SYSTEM
A REPORT BY THE SECRETARY
OF THE COMMONWEALTH OF PENNSYLVANIA

I. INTRODUCTION

The use of electronic voting systems in Pennsylvania elections is authorized by Act 1980-128, 25 P. S. §3031.1 et seq. Section 1105-A of the Pennsylvania Election Code requires all electronic voting systems to be examined and approved by the Secretary of the Commonwealth before use in any election in Pennsylvania.

Three examiners were appointed and an examination of the Danaher Controls' Electronic 1242 was held on October 15, 1998 in accordance with the Act and in response to a request from Danaher Controls of Gurnee, Illinois. The examiners present were Steven G. Chiavetta, Director of Elections and Voter Registration for Dauphin County, Harrisburg, PA; Bruce Gilbert, Harrisburg, PA, Bureau of Management Information Systems, Department of State; and Charles J. Long, Esq., York, PA, patent attorney. Dr. Michael Ian Shamos, Special Counsel for Electronic Voting; Dick Filling, Commissioner of Elections; Monna Accurti, Director of Operations; and Matthew Hurlburt, Administrative Assistant, represented the Secretary of the Commonwealth. Irving Walanka represented Danaher Controls. Also in attendance was Deborah Olivieri, Berks County Director of Elections.

II.   THE GUARDIAN ELECTION MANAGEMENT SYSTEM SOFTWARE

Guardian Election Management System is the Danaher Controls election processing software used to program the Danaher 1242 Voting Machine. It is used to enter election data, program memory cartridges, plot ballots, tally results and produce reports of vote totals. It is used with Windows 95 or Windows 98 software. According to the vendor, this software was preceded by a Shouptronic DOS based software that has not been maintained for seven years.

III.   EXAMINATION PROCEDURES AND RESULTS

The examiners, special counsel and representatives of my office examined the Guardian software. A summary description of the examination follows:

- Danaher Controls' representative, Irving Walanka, demonstrated the Guardian software using a personal computer. Mr. Walanka followed a series of interactive screens entering and revising information demonstrating how an election was coded.

- The Pennsylvania Standardized Test was conducted in conjunction with the testing of the Danaher Controls' Electronic 1242. The Guardian software was used to program the Electronic 1242 prior to the examination and to correct an incorrect ballot layout that was discovered by the examiners during the examination.

- After voting all the ballots of the Pennsylvania Standardized Test, a comparison was made between the official test results and the results produced by the Electronic 1242 programmed by the Guardian software. The examiners and special counsel were satisfied that the Electronic 1242 programmed by the Guardian software correctly tabulated the votes.

IV.   INDEMNIFICATION

The Commonwealth of Pennsylvania disclaims any opinion as to whether the Danaher Controls' Guardian Election Management System does or does not infringe any valid United States patents or copyrights of third parties.

The Secretary of the Commonwealth recommends that all counties utilizing the Danaher Controls' Guardian Election Management System obtain from Danaher a written patent indemnity and save-harmless warrant, including the obligation of Danaher to defend any patent infringement suit, in substantially the same form as provided to the Commonwealth of Pennsylvania.

V.   CONCLUSIONS

Based on the results of the examination conducted on October 15, 1998, the Guardian software meets the minimum requirements set forth in Act 1980-128 as they relate to software. Therefore, Danaher Controls' Guardian Election Management System is approved for use in the Commonwealth of Pennsylvania provided that it is used in conjunction with electronic voting systems certified by the Secretary of the Commonwealth.

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF STATE

EXAMINATION RESULTS OF
UNILECT CORPORATION'S
PATRIOT DIRECT RECORDING SYSTEM

Issued by:

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Robert N. Grant
Secretary of the Commonwealth
August 15, 1994

EXAMINATION OF UNILECT CORPORATION'S PATRIOT DIRECT RECORDING ELECTRONIC VOTING SYSTEM A REPORT BY THE SECRETARY OF THE COMMONWEALTH OF PENNSYLVANIA

I.   INTRODUCTION

The use of electronic voting systems in Pennsylvania elections is authorized by Act 1980-128 (25 P.S. § 3031.1 et seq.). Section 1105-A of the Pennsylvania Election Code requires all electronic voting systems to be examined and approved by the Secretary of the Commonwealth before use in any election in Pennsylvania.

Three examiners were appointed and an examination of the UniLect Corporation's Patriot Direct Recording Electronic Voting System was held on October 27, 1993 in accordance with the Act and in response to a request from UniLect Corporation of Dublin, California. The examiners present were Kamila Blessing, Ph.D., Durham, NC, specializing in human engineering factors of computer systems, Charles J. Long, Esq., York, PA, patent attorney, and Michael I. Shamos, Ph.D., J.D., Pittsburgh, PA, specializing in the use of computer technology in a legal environment. William P. Boehm, Commissioner of Elections, Monna Accurti, Director of Operations, and Matthew Hurlburt, Legal Assistant, represented the Secretary of the Commonwealth. UniLect Corporation was represented by Jack Gerbel, President.

II.   THE PATRIOT DIRECT RECORDING ELECTRONIC VOTING SYSTEM

The UniLect Corporation's Patriot is a direct recording system utilizing liquid crystal display (LCD) technology. The ballot is displayed on the LCD touch screen on multiple pages. The voter can select the appropriate screen by touching the appropriate page box on the screen. The voter can make a selection by touching the candidate's box on the LCD touch screen. The candidate's box remains illuminated after it has been touched. The voter can deselect a candidate by touching the box again and the box will no longer be illuminated. A voter may write in a candidate's name by touching the write-in box and spelling the name out on the special keyboard that appears on the screen. By touching the page boxes the voter can move the ballot forward and backward to review the entire ballot. When finished making the selections, the voter must touch the "cast ballot" box before leaving the booth. Voters may touch the "cast ballot" box to leave the booth without making any selections if they wish to cast a blank ballot. The system does not require paper ballots or punch cards.

Using a personal computer, election information can be programmed and stored into an "Infopack" which is inserted into a "Precinct Control Unit" (PCU), sealed and sent to the polling place. For security purposes, each "Infopack" works only with the PCU specified when it is programmed. As the polls are opened, the seal is broken causing the system to generate a report of each candidate's zero totals. When the polls are closed, the poll workers break another seal causing the system to print multiple copies of the record with candidates' cumulative totals. The poll workers must then break another seal and take the "Infopack" to a central location to combine vote totals from other precincts. A back-up system feature was designed to allow election workers to obtain vote totals in the event that the printer fails. However, this feature was not functional during this examination.

III. EXAMINATION PROCEDURES AND RESULTS

The examination 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 system, and the examiners and representatives of my office conducted various tests, including the Pennsylvania Standardized Test which was designed to test for the legal requirements for ballots specified in Section 1107-A of the Code. A summary description of the examination follows:

▶ The vendor initiated the system, opened the polls and printed a zero total report. The examiners cast the Pennsylvania Standardized Test and verified that the machine correctly did not permit an overvote. For the purpose of the test, the examiners simulated the overvote test ballots so that the results would reflect the cancelled selections. The results from the official test were correct.

▶ The vendor attempted to demonstrate the Patriot's advertised feature "display results" but it did not function. After several unsuccessful attempts, he determined that there was a crease or a disconnected wire within the PCU probably caused by frequent shipping of the hardware.

▶ The Patriot produced an audit trail that displayed all ballots cast in a random order. Although this report showed that write-in votes were cast, the report failed to display the <u>names</u> of the candidates who received write-in votes.

The examiners and my staff were concerned about the "display results" malfunction and the system's failure to include the names of write-in candidates on the audit log. However, they felt that these problems did not warrant an additional examination. The examiners and the representatives of my office instead requested that UniLect

2

Corporation correct the hardware problem and programming flaw and demonstrate these corrections to the satisfaction of my staff.

A demonstration of the Patriot was conducted on June 30, 1994. Jack Gerbel, President and Chief Executive Officer of UniLect Corporation, and members of my staff, including William P. Boehm, Commissioner of Elections, Monna J. Accurti, Director of Operations, Matthew Hurlburt, Administrative Assistant, and John Murphy, Legal Assistant, attended the demonstration. The vendor produced a zero print report and opened the polls. Members of my staff voted the Pennsylvania Standardized Test and the results of the official test were correct. In addition, the "display results" feature functioned correctly. However, the audit log revealed that the system reconstructed the ballots inaccurately. Two ballots had inaccurate write-in votes for the office of Tax Collector. One ballot showed a vote for write-in candidate "Joe Stevens" that should have been a vote for write-in candidate "Sam Burns." Another ballot showed a vote for write-in candidate "Tom Davis" for Tax Collector that should have been a vote for write-in candidate "Joe Stevens." "Tom Davis" was a write-in candidate for County Commissioner and not a candidate for Tax Collector. My staff and the vendor agreed to a second demonstration on July 1, 1994.

On July 1, 1994 the vendor and members of my staff, including William P. Boehm, Commissioner of Elections, Matthew Hurlburt, Administrative Assistant, and John Murphy, Legal Assistant, participated in a second demonstration to determine whether sufficient modifications had been made to the system to correct the inaccuracy of the audit log. In addition to the Pennsylvania Standardized Test, two new sets of test ballots were developed and voted by my staff. Each test resulted in accurate election results and audit logs which correctly displayed the names of write-in candidates receiving a vote.

Subsequent to the second demonstration, the vendor sent a letter in which he attributed the inaccuracy of the Patriot's audit log during the June 30, 1994 demonstration to an incorrect last-minute change in the tabulation program in order to display the names of the write-in candidates in the audit log.

IV.   INDEMNIFICATION

The Commonwealth of Pennsylvania disclaims any opinion as to whether the UniLect Corporation's Patriot voting system does or does not infringe any valid United States patents or copyright of third parties.

The Secretary of the Commonwealth recommends that all counties utilizing the

Patriot system obtain from UniLect Corporation a written patent indemnity and save-harmless warrant, including the obligation of UniLect Corporation to defend any patent infringement suit, in substantially the same form as provided to the Commonwealth of Pennsylvania.

V. CONCLUSIONS

Based on the results of the examination conducted on October 27, 1993 and the demonstrations held on June 30, 1994 and July 1, 1994, it is our opinion that the UniLect Corporation Patriot meets the minimum requirements of Act 1980-128 and is, therefore, approved for use in the Commonwealth of Pennsylvania.

The Patriot will accommodate a maximum of 350 voters. Considering their similar characteristics of operation, the provisions pertaining to apportionment of voting machines contained in Section 1104 of the Election Code [25 P.S. § 3004(a)] may be used to apportion the Patriot. The Patriot must be used in conjunction with a voting booth to accommodate voter privacy.

With regard to the structure of election boards and pursuant to Section 404 of the Election Code (25 P.S. § 2674), one clerk should be appointed by the minority inspector in each district in which the Patriot is used; in each district in which more than one Patriot is used, the county board of elections should, prior to each election, appoint one qualified registered elector of the county to serve as a machine inspector for each additional machine.

4

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF STATE

EXAMINATION RESULTS OF
DANAHER CONTROLS' ELECTRONIC 1242
DIRECT RECORDING ELECTRONIC VOTING SYSTEM

Issued by:

Kim Pizzingrilli
Secretary of the Commonwealth
October 19, 1999

EXAMINATION OF DANAHER CONTROLS' ELECTRONIC 1242 DIRECT RECORDING ELECTRONIC VOTING SYSTEM (FORMERLY CERTIFIED AS THE SHOUPTRONIC VOTING MACHINE) A REPORT BY THE SECRETARY OF THE COMMONWEALTH OF PENNSYLVANIA

I.   INTRODUCTION

The use of electronic voting systems in Pennsylvania elections is authorized by Act 1980-128, 25 P. S. §3031.1 et seq. Section 1105-A of the Pennsylvania Election Code requires all electronic voting systems to be examined and approved by the Secretary of the Commonwealth before use in any election in Pennsylvania.

Three examiners were appointed and an examination of the Danaher Controls' Electronic 1242 was held on October 15, 1998 in accordance with the Act and in response to a request from Danaher Controls of Gurnee, Illinois. The examiners present were Steven G. Chiavetta, Director of Elections and Voter Registration for Dauphin County, Harrisburg, PA; Bruce Gilbert, Harrisburg, PA, Bureau of Management Information Systems, Department of State; and Charles J. Long, Esq., York, PA, patent attorney. Yvette Kane, former Secretary of the Commonwealth, represented the Department of State; in addition, Dr. Michael Ian Shamos, Special Counsel for Electronic Voting; Brian Gottlieb, former Deputy Chief Counsel; Dick Filling, Commissioner of Elections; Monna Accurti, Director of Operations; and Matthew Hurlburt, Administrative Assistant, represented the Secretary of the Commonwealth. Irving Walanka represented Danaher Controls. Also in attendance was Deborah Olivieri, Berks County Director of Elections.

II.   THE ELECTRONIC 1242

The Electronic 1242 is a direct recording electronic voting system (DRE). The unit employs a large (26" x 28") single page paper ballot with a Mylar overlay. The ballot has a maximum of 504 voting positions. Offices and candidates are aligned with buttons on the face of the machine. The ballot is prepared and the machine is programmed using the Guardian Election Management System software which is marketed separately. Secrecy panels and curtains provide privacy while voting. Red lights on the exterior of the system indicate the presence of a voter within.

When the elector enters the voting booth, blinking lights indicate the offices for which an elector can vote. The elector makes his selections by pressing buttons which correspond to the offices and candidates. The button triggers a light which indicates the elector's choice. The elector can change his vote at any time prior to pressing the VOTE button. Once the elector completes voting, he casts his ballot by pressing the VOTE button. All votes are recorded electronically in the system's memory.

All items on the ballot are totaled and printed on an internal printer following the close of the polls and returned to the County Board of Elections.

III. EXAMINATION PROCEDURES AND RESULTS

The examination was conducted to test for the statutory requirements specified in Section 1107-A of the Election Code (25 P.S. §3031.7). Danaher Controls representative, Irving Walanka, provided a detailed description of the Electronic 1242 and the three examiners, Special Counsel, and members of the Department of State staff examined the voting system by conducting various tests, including the Pennsylvania Standardized Test designed to reflect the legal requirements for ballots specified in Section 1107-A of the Code. A summary description of the examination follows:

- Mr. Walanka provided a detailed description of the Electronic 1242 and during the question and answer period which followed it became apparent that the ballot was set up incorrectly in two areas. First, the straight party function was not set up in accordance with Section 1107-A (3) of the Election Code, 25 P.S. §3031.7 (3). The system required an elector who made a straight party selection to first de-select candidates of the straight party before deviating and making a selection outside that party. Second, the Electronic 1242 did not comply with Section 1107-A (7) of the Election Code, 25 P. S. §3031.7 (7), which requires that the voting system preclude a voter from voting for more than one person for any office than he is entitled to vote for. The Electronic 1242 was programmed to allow an elector to vote more than once for a cross-filed candidate when an elector was permitted to vote for more than one candidate for a particular office.

- The vendor representative indicated that he was able to program the machine in compliance with the requirements of the Pennsylvania Election Code. The programming was done with expedience.

2

- Once the programming flaws were corrected, the vendor printed a zero proof report and special counsel and one of the examiners voted the official test ballots. Since DRE's do not permit an overvote and test ballot numbers 7, 9 and 11 examine the manner in which a system will handle an overvote, the examiners left all such votes blank to simulate how a punch card or optical scan system would correctly canvass the votes for that office.

- After voting all the ballots of the Pennsylvania Standardized Test, a comparison was made between the official test results and the results produced by the Electronic 1242. The three examiners and Special Counsel were satisfied that the Electronic 1242 correctly tabulated the ballots.

IV. INDEMNIFICATION

The Commonwealth of Pennsylvania disclaims any opinion as to whether the Danaher 1242 does or does not infringe any valid United States patents or copyrights of third parties.

The Secretary of the Commonwealth recommends that all counties utilizing the Danaher 1242 obtain from Danaher a written patent indemnity and save-harmless warrant, including the obligation of Danaher to defend any patent infringement suit, in substantially the same form as provided to the Commonwealth of Pennsylvania.

V. CONCLUSIONS

Based on the results of the examination conducted on October 15, 1998, the Danaher Controls 1242 meets the minimum requirements of Act 1980-128 and is, therefore, approved for use in the Commonwealth of Pennsylvania.

The Danaher 1242 must contain a no-vote feature prior to its use in any election in the Commonwealth of Pennsylvania. The no-vote feature provides the voter with the option of not voting if he so desires. This requirement may be satisfied by programming one voting position to represent a no-vote.

The Danaher 1242 will accommodate a minimum of 350 voters. Considering their similar characteristics of operation, the provisions pertaining to apportionment of voting machines contained in Section 1104 of the Election Code, 25 P.S. §3004(a), may be used to apportion the Danaher 1242.

With regard to the structure of election boards and pursuant to Section 404 of the Election Code (25 P.S. §2674), one clerk should be appointed by the minority inspector in each election district in which the Danaher 1242 is used. If more than one Electronic 1242 is used in an election district, the county board of elections should, prior to each election, appoint one qualified registered elector of the county to serve as a machine inspector for each additional machine.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF STATE
HARRISBURG, PENNSYLVANIA
17120

July 24, 1991

Mr. Robert J. Boram, PE
R. F. Shoup Corporation
P.O. Box 380
Bryn Mawr, PA   19010

Dear Mr. Boram:

In response to a request from the R. F. Shoup Corporation, a demonstration of the Shouptronic 1242 was held on February 19, 1991. Representing the Secretary of the Commonwealth at the demonstration were William P. Boehm, Commissioner of Elections, Pamella J. Raison, Chief Counsel, and Monna J. Accurti, Legal Assistant. You represented the R. F. Shoup Corporation.

Pursuant to the demonstration and your affidavit dated July 16, 1991, certifying that the only changes made to the Shouptronic 1242 were the number of error codes was increased, service codes were added, Ballot Image Retention was added, the printer module which prints the opening count and results paper tape was changed from a dot-matrix impact printer to a thermal printer, and the capability to print out ballot images specifying ballot location selected on each image, the Shouptronic 1242 is approved for use in Pennsylvania with only these enumerated modifications.

If you have any questions, please do not hesitate to contact William P. Boehm, Commissioner of Elections, at (717) 787-5280.

Sincerely,

Christopher A. Lewis

CAL/jh

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF STATE
OFFICE OF THE SECRETARY OF THE COMMONWEALTH

REPORT OF REEXAMINATION

OF

R. F. SHOUP CORPORATION
SHOUPTRONIC VOTING MACHINE

INTRODUCTION

On September 13, 1985, this office conducted a reexamination of the Shouptronic Voting System offered by the R.F. Shoup Corporation. I ordered the reexamination in conformity with Section 1105-A (25 P.S. §3031.5) following receipt of an August 29, 1985 letter from the Dauphin County Board of Elections outlining questions and concerns with the Shouptronic programming as certified by this office to be in compliance with the Pennsylvania Election Code on July 3, 1984.

The August 29 letter from the Dauphin County Board of Elections specifically requested a review of the programming of the Shouptronic system as it pertains to the manner in which split ticket votes are recorded and tabulated following an initial registration by a voter of a straight ticket vote for a political party or political body. The Dauphin County Board expressed their desire that this review be expedited in consideration of the planning and operational requirements confronting the Board in connection with the November election where this system is going to be used county-wide. Hence, a reexamination was promptly scheduled for Friday, September 13, 1985 before the panel of examiners.

The following three experts served on the examination panel: Michael I. Shamos, Ph.D., J.D., Pittsburgh, Pa. specializing in the use of computer technology in a legal environment; Charles J. Long, Esq., Patent Attorney, York, Pa.; Judith C. Schadt, Voter Services Director, Pennsylvania League of Women Voters, Warren, Pa.

An invitation to attend the reexamination was extended to the Dauphin County Board of Elections. The Board was represented by Commissioner Larry J. Hochendoner, Commissioner Frederic S. Rice, Solicitor Neil Hendershot and Assistant Elections Director Steven Chiavetta. The R.F. Shoup Corporation was represented by Dr. Robert Boram, Director of Engineering.

STATEMENT OF THE PROBLEM

Straight party voting is accomplished on the Shouptronic system by touching an empty square opposite the name of a political party or political body represented on the ballot. At that point, the lights next to all the candidates representing that political party or body come on. The method to be used to override such a vote after it has been initially registered but not yet cast is the specific subject of this reexamination.

On July 3, 1984, this office certified in conformity with Section 1107-A (3) of the Pennsylvania Election Code [25 P.S. §3031.7 (3)] what has become known throughout this review as the 'Pennsylvania Method'. Section 1107-A (3), which is the controlling section, reads as follows:

> "No electronic voting system shall, upon any
> examination or reexamination, be approved by the
> Secretary of the Commonwealth, or by any examiner
> appointed by him, unless it shall be established that
> such system, at the time of such examination or
> reexamination:

(3) Permits 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, <u>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.</u>"

To satisfy this statutory requirement, the 'Pennsylvania Method' will register votes for all candidates of a political party under control of the straight party button, but, if the voter follows this action by individually selecting one or more candidates regardless of party, it will cancel all straight party votes within an office as initially recorded except for the candidate(s) individually selected.

The Dauphin County Board of Elections has requested certification of what has become known as the 'All States Method' whereby a voter can split ticket vote after initially recording straight party by first cancelling one or more candidate buttons and then selecting one or more candidates to vote for within an office. This method closely emulates split ticket voting on a mechanical lever machine. The 'Pennsylvania Method' resembles split ticket voting on paper ballot and all electronic voting systems currently in use.

<u>EXAMINATION AND TESTING</u>

The examination consisted first of a detailed review of our interpretation of Section 1107-A (3) of the Code and the operation of the 'Pennsylvania Method' to satisfy this office that it properly complied with the statute. Secondly, a test of the 'All States Method' was performed to determine its compliance with Section 1107-A (3). It became clear during the test that the 'All State Method' does not meet the statutory requirements for certification by the Secretary. In straight party ticket voting situations, when a vote for an individual candidate was registered after the initial straight party vote was registered, the candidate selections from the initial straight party registration remained lighted even though the voter did not individually select them. Therefore, the 'All States Method' did not "credit the vote for each office <u>only</u> for the candidate individually so selected" as required by the Election Code.
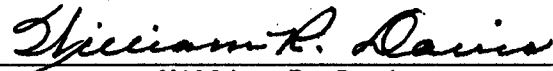
Finally, a discussion was conducted regarding the installation of a 'No Vote' feature on the Shouptronic system. A 'No Vote' feature provides for the casting of a blank ballot by a voter. Without a 'No Vote' feature, a voter cannot escape from the Shoup system's candidate/issue selection mode prior to registering a selection without intervention from the polling place official operating the system. Therefore voters who wish to cast a blank ballot containing no candidate or issue selections cannot do so undetected. The absence of a 'No Vote' feature, therefore, does not provide for voting in absolute secrecy as prescribed by Section 1107-A (1) [25 PS §3031.7 (1)].

CONCLUSIONS

Following my review of the reports of the examiners and my inspection of the operation of the 'All States Method', I must conclude that the 'All States Method' does not comply with the requirements of Electronic Voting Systems as outlined in the Pennsylvania Election Code and cannot be certified as meeting the legislative requirements for an Electronic Voting System. Therefore, the Shouptronic Voting System must stand as initially certified using the 'Pennsylvania Method'.

The original certification of the Shouptronic Voting System was granted with the understanding that a 'No Vote' feature was to be incorporated into the machine. This requirement was made clear during both the examination of November 17, 1983 and the reexamination of September 13, 1985. Therefore, the 'No Vote' feature must be installed on the Shouptronic Voting System prior to its use in any election in this Commonwealth in order to meet the conditions of certification for an electronic voting system.

by:

William R. Davis
William R. Davis
SECRETARY OF THE COMMONWEALTH
September 26, 1985

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF STATE
OFFICE OF THE SECRETARY OF THE COMMONWEALTH

REPORT AND CERTIFICATION

OF

R. F. SHOUP CORPORATION
SHOUPTRONIC VOTING MACHINE

On November 17, 1983, this office conducted an examination of the Shouptronic Voting Machine offered by the R.F. Shoup Corporation as prescribed by Section 1105-A of Act No. 1980-128 (25 P.S. §3031.5).

The following three experts served on the examination panel: Charles J. Long, Esq., Patent Attorney, 46 South Duke Street, York, Pa.; Dr. C. Kamilla Robertson, Ph.D., Computer Scientist from Carnegie Mellon University specializing in human engineering factors of computer systems; Dr. Michael I. Shamos, Ph.D., Carnegie Mellon University specializing in the use of computer technology in a legal environment.

The Shouptronic Voting Machine is an electronic vote recording and tabulating device designed for use at the election precinct or district level. The device employs a large translucent paper ballot face with offices and candidates aligned to buttons on the face of the machine. The first step of voting is performed by pressing buttons which correspond to ballot elements. The buttons light up to indicate that a choice has been made.

When a voter completes his choices, the ballot is then cast by pressing a final button. Prior to this point, all ballot choices are changeable.

Votes cast are stored in a memory device. When the polls close, the machine totals for each ballot element are printed on an internal printer and returned to the county election authority. In addition, the machine totals are burned onto a PROM which can be read after power shutdown until erased using ultra-violet light. The precinct results can be immediately posted at the polling place since the machine is capable of producing several total print-outs.

The approach in performing our examination is detailed below:

(1) Reviewed the preparation and programming of the Shouptronic Voting Machine.

(2) Observed the production of the zero print tape to prove that all counter registers were set to zero prior to recording and tabulating ballots.

(3) Cast the simulated ballots on the Shouptronic Voting Machine and produced a paper tape report of the tabulated results.

(4) Observed the public counter display to verify that an actual ballot count was represented and found no discrepancies.

(5) Compared the known results of the simulated ballot with the external printed paper tape report of totals obtained from the Voting Machine and found no discrepancies.

The device uses one 110 supply voltage receptacle which supplies power to the incandescent lights which illuminate the ballot and also maintains battery at a fully charged level. If 110 voltage is not available, internal battery has sufficient capacity to operate the machine for a minimum of 16 hours. The machine is self contained in a folding booth.

This report does not reflect an opinion as to the appropriateness of this system for a given jurisdiction. That decision can only be made by the

purchasing county.   This examination was conducted to determine the compliance of the vendor's product with the provisions of Act No. 1980-128 (see 25 P.S. § 3031.7).
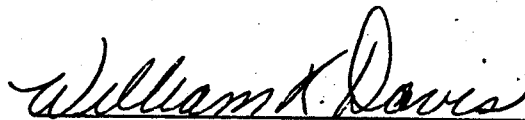
The reports submitted by the independent expert examiners were subject to review by chief counsel for the Department to insure that the examinations were conducted pursuant to the criteria mandated by the aforementioned Act.

The Shouptronic Voting Machine will accomodate a minimum 350 voters and the provisions pertaining to the apportionment of voting machines contained in section 1104-a, Subsections 1 and 2 of the Pennsylvania Election Code (25 P.S. §3004(a), Subsections 1 and 2) may be used to apportion the Shouptronic Voting Machine in consideration of their similar characteristics of operation.

With regard to the structure of election boards, one clerk should be appointed by the minority inspector in each district in which the Shouptronic Voting Machine is used, and in each district in which more than one Shouptronic Voting Machine is used, the county board of elections should, prior to each election, appoint one qualified registered elector of the county to serve as a machine inspector for each additional Machine.

Based on the results of the examination conducted in conformity with the provisions of Act No. 1980-128, the Shouptronic Voting Machine is hereby approved for use in the Commonwealth of Pennsylvania.

by:

William R. Davis
SECRETARY OF THE COMMONWEALTH
July 3, 1984