

Testimony of Charles P. Lamb to the New Jersey Assembly Judiciary Committee on bill A4619

October 26th, 2017

Introduction

I am in favor of eliminating further delay in the implementation of voter-verified paper records however I believe some remedial action is required before this should be done. The intent of the legislature has been mis-interpreted in the requirements established by the Attorney General and applied by the Voting Media Examination Committee to the detriment of the voting process. Below I have described three cases where the implementation of the legislation requires correction.

All of the information on which my opinion is based has been obtained from the World Wide Web. Additional information would be helpful but I have not had the time to obtain it through requests made to the voting machine vendors or OPRA requests to the various state entities.

Non-standard abbreviations used in this document

VMEC – Voting Media Examination Committee

VVPRC – Criteria for Voter-Verified Paper Record for Direct Recording Electronic Voting Machines

“Quick-Pick” voting

Problem – VVPRC IV.C.5 requires the machine to operate so that the voter is allowed no more than three attempts to produce a paper record indicating the voter's selections. On the third attempt the selections indicated on the paper record must be cast regardless of whether or not the voter approves of the selections printed thereon. The requirement that a ballot be cast which is not approved by a voter is repugnant to the concept of a democratic republican government and a violation of the New Jersey and Federal Constitutions.

Proposed Remedy – If more than a set number of machine printed paper records is rejected by the voter the machine should disable itself for that voter, print a paper record indicating so, and not cast any ballot for that voter. The voter should then be permitted to vote using a Provisional Ballot.

Discussion – The reason a paper record of each vote is being required by the legislature is that the legislature recognizes that a voting machine may on occasion operate contrary to design. However, the requirement that the voter only be permitted three attempts before being forced to vote implies that the machine is operating correctly and that the failure to produce an acceptable printed paper ballot can only be due to an error of the voter. This requirement was questioned more than once by members of the VMEC but members were informed that this requirement was mandated by New Jersey law. The specific law requiring this was not mentioned. My best guess is that the law being referred to is N.J.S.A. 19:15-29. Although the legislature in N.J.S.A. 19:53A-13 states that the provisions of Title 19 are applicable to electronic voting systems I believe this particular part was intended by the legislature to only apply to manually marked ballots—not voter-verified paper records.

Paper record type size

Problem – VVPRC III.A.4 specifies the type font size on the paper record as being in the ranges 3.0-4.0 mm and 6.3-9.0 mm as may be selected by the voter or poll worker. This size may be achieved by magnification of the paper record. Allowing this size to be achieved by magnification is not acceptable. No specification is made as to the color of the lettering and the style of the type. This should be done to ensure that the voter-verified paper record is readable.

Proposed Remedy – The type used on the paper record should meet the requirements for size, style, and color as prescribed by the legislature in N.J.S.A. 19:14-16 for manually marked paper ballots and in N.J.S.A. 19:49-2 for voting machines without the use of magnification. The legislature should modify the requirements of N.J.S.A. 19:49-2 so that the paper record need not have the prescribed arrangement and shall use black ink for public questions.

Discussion – The voter-verified paper record should meet the same requirements for legibility as a manually marked paper ballot and the same requirements as the ballot displayed on the voting machine because it serves the same function to the voter. N.J.S.A. 19:14-16 specifies candidate name and title to be in 10 point type [3.51mm]. A voter capable of reading a machine or paper ballot should be capable of reading the voter-verified paper record in order to determine that the choices printed thereon are correct. Some voters require the use of magnifiers to read the ballots on current voting machines. It may be inferred that some voters may therefore require the use of magnifiers to view the voter-verified paper record even if it adheres to the size standards. If these size standards are achieved by allowing built-in magnification on the machine then the use of additional magnification will be difficult for the voter.

Paper record fragility

Problem – The requirement of N.J.S.A. 19:53A-3.i that the paper record be “permanent” has been interpreted in VVPRC III.C.3 as “If stored in accordance with vendor specifications, the paper used to produce a paper record shall be readable for a period of at least two years after the election in which it is used.”. This requirement has been implemented by the vendors and accepted by the VMEC by use of thermal printing paper for the paper record. I have been unable to find any vendor specifications on line and rely on testimony given at VMCE hearings such as that the paper is sensitive to excessive heat and light and that the specifications are “essentially are temperature and humidity that we find in this room and you can save some variation around that considering voting machines are stored in a warehouse environment which may not have perfect air conditions like at your house or in a business office.”. These storage criteria seem reasonable but do not account for the possibility that either through negligence or intent to disrupt an election the paper records may be subject to extreme conditions of temperature, light, or chemical vapors rendering them unreadable.

Proposed Remedy – Conditions under which the paper records may be safely stored should be a specified requirement in the VVPRC. These specifications should include not only conditions under which the records are planned to be stored but also adverse conditions to which the records may be exposed such as excessive heat and exposure to chemical vapors commonly found in offices. The specifications supplied by the vendor should not be relied upon but there should be independent testing to ensure that the paper meets the required specifications such as was done for the machines themselves.

Discussion – Thermal printing systems are highly reliable as they require few components and few

moving parts. However the output is notoriously fragile. The National Archives and Record Administration does not consider thermal paper to be permanent medium. The purpose of the requirement for a voter-verified paper record is to ensure that the ballots are secure against accidental or intentional tampering. The paper records themselves should therefore be secure against accidental or intentional tampering. They should be able to survive being left in a vehicle in the hot sun, being placed next to a steam radiator, being in a warehouse where someone with evil intent has turned off the air conditioning or turned up the thermostat, or being in a room where someone has left open a bottle of a cleaning chemical.

Sources and Additional Information

The VVPRC and VMEC hearing transcripts were obtained from <http://www.nj.gov/state/elections/county-voting-equipment-vvpat.html>

N.J.S.A. were obtained from <http://lis.njleg.state.nj.us/nxt/gateway.dll?f=templates&fn=default.htm&vid=Publish:10.1048/Enu>

The National Archives and Record Administration statement on thermal paper can be found at <https://www.archives.gov/records-mgmt/bulletins/1996/96-03.html>

White paper on thermal paper durability from Brother Mobile Solutions, Inc. https://www.brother-usa.com/Mobile/pdfs/white_papers/ThermalPaperWhitePaper.pdf

About Charles P. Lamb

- Resident of Scotch Plains, New Jersey.
- Served as a poll worker in Scotch Plains for approximately 25 years.
- Graduate of Case Western Reserve University with a B.S. in Computer Engineer.
- Graduate of New Jersey Institute of Technology with a M.S. in Computer Science.
- Professional developer of computer graphics systems.